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NEW LAMPS FOR OLD*

BY

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While the making of a diagnosis depends entirely upon information received through one or other of the special senses, the extent to which each can be used and the relative value of what it tells vary widely. In extent of use the eyes and the ears far exceed the other two. In the first or "subjective" part of the routine examination the ears bear the brunt of the burden, but the eyes are by no means idle; in the second or "objective part" these two are assisted by the sense of touch and, at times, of smell.

As regards reliability, sight undoubtedly surpasses any of the other senses, but there are occasions when each may provide trustworthy clinical data. The feeling of fluctuation, the sound of pericardial friction, the smell of a diabetic, are as reliable as any visible sign. Even the anamnesis may, at times, be of as great diagnostic value as anything found at physical examination, or possibly greater.

The Microscope

Speaking broadly, however, from the diagnostic point of view the eye is the most important sense organ. Many, perhaps most, of the great advances in medical knowledge have come from "the seeing of something"! Harvey's theory of the motion of the heart and blood was based upon what he saw. The rhythmic beat of the heart, the valves in the veins, had been described long before his time; the use of the armlet was familiar to every blood-letter, but none before him had really seen these, and much else, as a whole! The capillary vessels he did not live to see. The primitive microscope of his day was not powerful enough to show them, but he knew they must be there, and foretold them in these memorable words (Willis, 1889):

"In the limbs and extreme parts of the body the blood passes either, immediately, by anastomosis from the arteries into the veins, or, mediately, by the pores of the flesh, or in both ways."

Within four years of his death the microscope had developed sufficiently for Malpighi to demonstrate the capillaries which Harvey had foretold. Thus we reach the dawn of another great advance in medicine, again thanks to an increased power of seeing!

Histology, pathology, and bacteriology have only been made possible by the development of the microscope, which we owe to the optical physicists and glass manufacturers of successive generations. In working with a microscope, as also in ordinary life, there are times in which a lamp is needed to give light. Its importance is then incomparable. No higher tribute has been paid to Florence Nightingale than to know her for all time as "The Lady with the Lamp." And so we come to the title of my paper. When the familiar tale of *Aladdin and the Wonderful Lamp* was first told some centuries ago a lamp was as indispensable in every household as it is to-day, and no doubt their lamps, like ours, did not improve with age, but required renewal from time to time. This explains that short incident in the story, when the Moor wanting to recover his magic lamp goes to a coppersmith and says (Lane, 1839):

"'Make me a number of lamps and take their price and more; only I wish thee to hasten and finish them. . . .' And when they were made the Moor paid him the price he asked for them and took them and departed . . . and put them in a basket. Then he went about the streets and bazaars of the city crying, 'O! who will exchange old lamps for new?'"

It is not necessary to complete the story; but there is one further sentence so germane to our subject that it must not be left out. These old Eastern tales, like the fables and the fairy tales, have survived not merely because of the wealth and beauty of their imagery, but also because they are full of wisdom and knowledge of human nature. And so the story continues (Lane, 1839):

"And when the people heard him crying thus they laughed at him, saying, 'No doubt this man is mad, since he goeth about to exchange old lamps for new.' And the street boys pursued him from place to place and mocked at him . . . but he gainsaid them not, nor cared for that, but did not cease perambulating the city . . . while the boys shouted at him, 'Madman, Madman!'"

Harvey's New Lamp

How Harvey was treated when he cried his new lamp in the bazaars of this country only about three centuries ago is well known. John Aubrey wrote: "I have heard him [*that is, Harvey*] say that after his booke of the circulation of the Blood came out, that he fell mightily in his practice, and 'twas believed by the vulgar that he was crack-brained, and all the physitians were against him." Mellanby (1938) in his recent Harveian Oration before the Royal College of Physicians adds a confirmation of this, from a letter written by Lord Conway to his daughter in 1640:

"I hear that you have a great good opinion of Dr. Harvey . . . he is a most excellent anatomist . . . but in the practicke part of his Physicke, I conceive him to be mutch, many times, governed by his Phantasye."

* Paper read before Sheffield Medico-Chirurgical Society, February 23, 1939.

Harvey himself knew what would happen; he writes (Willis, 1889):

"But what remains to be said . . . is of so novel and unheard-of character that I not only fear injury to myself from the envy of a few, but I tremble lest I have mankind at large for my enemies, so much doth wont and custom, that become as another nature, and doctrine once sown and that hath struck deep, and respect for antiquity influence all men. Still the die is cast and my trust is in the love of truth, and the candour that adheres in cultivated minds."

So, although they shouted "Madman!" Harvey gainsaid them not, and did not cease perambulating the city crying his new lamp! The days of magicians, and of pseudo-magicians, crying out their new lamps in our streets and bazaars have not yet ceased; indeed, they are steadily increasing not only in number but in the loudness and insistence of their cries. Some have helped us to see more. Among these the electric-light bulb in its application to medical instruments must not be forgotten. It has not only made easier what were previously difficult, sometimes very difficult, forms of clinical examination, such as the use of the ophthalmoscope and laryngoscope, but it has increased the range and number of internal organs which can now be seen during life. Of the latter one need only mention the bronchoscope and the cystoscope, whilst as regards increased facility of use some of us can recall the frequent difficulty in early days of seeing the fundus oculi, when the patient was restless or semiconscious, in a cottage bedroom, with no better aid than the reflected light of a candle! Let us pay this tribute to our forefathers: they saw and described most of the important changes in such regions as they could look at, under those old and more difficult conditions.

Lister the Magician

The first great magician offering a new lamp within my medical memory was Joseph Lister. The true greatness of his discovery lies in the fact that it has extended our vision of the internal parts of the human body during life. Just as aided by the light of his "safety lamp" the coal-miner can carry on his work with but little danger, deep "in the bowels of the earth," so the surgeon, with Lister's lamp in hand, can look into the cavities of the living body, and with the minimum of risk perform such operation therein as may be necessary. Even the physician, borrowing for the time the surgeon's lamp, can plunge his hollow needle with safety into the theca, the cistern, or even a lateral ventricle, and although he does not see the inside of them, yet from the material withdrawn he can form a confident opinion as to what they look like.

To realize the extent to which our knowledge of abdominal and meningeal disease has been revolutionized by what Lister has enabled us to see, it is only necessary to refer to the chapters on gastro-intestinal disorders, or gall-stones, in the medical textbooks of last century, or to recall the fact that while previous to Quincke's introduction of lumbar puncture the differential diagnosis of a meningitis was usually only possible at necropsy, to-day it can be made with certainty within a few hours. But the safety of these punctures depends upon the use of Lister's lamp.

Like Harvey, Lister was met by mockery in his early days. The obituary notice of Rutherford Morison in a recent number of the *British Medical Journal* (1939, **1**, 139) reads as follows: "After graduating in Edinburgh in 1874 Morison was house-surgeon at the Royal Infirmary to Patrick Heron Watson, a surgeon who was bitterly opposed to Joseph Lister and 'his newfangled methods.' . . . Morison spent as much time as was possible, and as much as he dare without being detected by his chief, in Lister's ward; he used to relate that the feeling on the part of his chief was so great that had his 'disloyalty' been discovered he knew it would have meant instant dismissal."

Two other lamps, new during the last half-century or so, illustrate well the advantages of visible over other physical signs. The clinical thermometer and the sphygmomanometer have transferred the gauging of "fever" and of "blood pressure" from the hand to the eye. What formerly depended upon, and varied with, individual skill and practice can now be done with accuracy by the merest tyro! While these lamps have been accepted by all, mostly so long ago that we neither know nor care what old ones they have replaced, yet there are two, more recent newcomers—the *x* rays and the electrocardiograph, each of the highest value—which are still causing some uncertainty as to exactly what, if any, of our old ones they should replace.

The Magic of X Rays

As regards Roentgen's *x* rays there is no such difficulty in certain departments of our work. In the diagnosing of bone injuries, abdominal diseases, internal calculi, and certain forms of intracranial or intraspinal lesion their position is clear and agreed. They provide a light which is different in kind and exceeds in value any that existed before. In the region of the chest, however, there is still some difference of opinion as to when and where they should come in the ritual of the "physical examination," as taught and practised to-day. Everyone agrees that radiography can never replace entirely the older methods of examination of the patient in general, or of the chest in particular; nor can it remove the necessity for a full and detailed history; but as to the exact position it should take, and what it can replace, views vary considerably. When is it essential; when necessary? At what point in the routine physical examination should it come—before, during, or after? What item or items does it make superfluous?

These questions are not merely of academic interest, they concern all of us. Has not the time come when the teachers of medicine and the teachers of radiology might come together and formulate some general scheme for the instruction of students, and for the guidance of the younger practitioners? To these it must seem rather odd to spend time and trouble in trying to find out the presence or absence of something inside the chest which the *x* rays would tell at a glance! May they not properly remind us that there are from time to time cases, say, of early or of miliary tuberculosis, which are easily demonstrable by *x* rays but give no physical signs even to the most expert observer? Similarly, also, with some early cases of aortic aneurysm. Indeed they might strengthen their argument by quoting from a leading modern textbook (Davidson, 1935) on the chest, which says: "From the ideal point of view it is perhaps desirable that every chest should be examined radiologically as well as clinically. *Were this always possible* [italics mine] there can be no doubt that the number of missed diagnoses would be considerably smaller, especially in the case of early tuberculous disease of the lungs." In the days before *x* rays were heard of Samuel Gee (1907) had expressed the same truth in a rather different way. In his *Clinical Aphorisms*, under the heading "Of Phthisis," Number 12 reads: "Therapeutics must begin before physical signs have developed; for if you wait for physical signs, you wait too long."

On the other hand, among the older members of the profession there is a feeling that the radiograph should not be looked at until after the physical examination has been made: and that the radiological "crib" should not be looked at until we have completed our translation of the "unseen"! Unless this is done it is suggested that the refinements of touch and hearing so essential for physical diagnosis will never be acquired. May not the result be quite otherwise? Is not the radiograph, whether seen before or after our physical examination, the best means of assessing, there and then, the value or otherwise of such signs as our other senses can furnish? Does it not show us at once the relative value of each, and so help to improve our individual technique? It is also pointed out that at the present time, for various reasons, it may not be practicable to obtain a radiograph. Such difficulty is, however, becoming less every year. Indeed, the time is not far off when a radiograph will become an essential in the examination of every suspected chest case. The insurance companies, fully alive to the value of visible physical signs, have for some years demanded written figures for the systolic and diastolic blood pressures; before long they will be asking for a radiograph of the chest, which they can see for themselves! It is only a matter of expense.

The Electrocardiograph

The electrocardiograph, which we owe to Einthoven, though necessarily more limited in extent of use than *x* rays, has made it possible to see and compare the electrical changes in the beating heart, in health and disease. Its place in cardiological examinations is already assured and agreed upon. With its help many older physical signs and symptoms in diseases of the heart have already been checked and their relative values more accurately assessed.

Time no doubt will settle for us, as it has done before, which of our old lamps shall remain and which shall be given up. Meanwhile, we can best encourage the crying of new lamps, any one of which may be very good, not by scoffing at, nor by acclaiming, them merely because they are new, but by keeping an ever-open and receptive mind: taking great care to avoid the mistake made by Aladdin's wife of giving a better in exchange for a worse.

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The Joint Council of Midwifery announces that the scheme for providing special nutrition for expectant mothers in South Wales, Monmouthshire, Durham, and Northumberland, which has been carried on since 1935 by the Council and the National Birthday Trust Fund, will be continued for another two months until the report of the committee investigating the effects of the special foods is available. The three-year experimental grant of £17,500 made by the Commissioner for Special Areas came to an end on April 1, but this extension has been made possible through special donations, and it is hoped that further gifts will provide the £250 required to continue the distributions until July. Donations should be sent to Lady Williams, 57, Lower Belgrave Street, London, S.W.1.

BLOOD TRANSFUSION WITH THE ROTARY PUMP

BY

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The main object of this paper is to draw attention to the various disadvantages of the syringe method of transfusion, and of transfusion by flask and bellows. At the same time it is appreciated that some form of special transfusion apparatus—as opposed to the ordinary gravity method—has its place in blood-transfusion work, and I have chosen for a detailed description the rotary pump, because I believe this to be so far in advance of other special methods that it ought to be more widely known. The observations in this article are based on the experiences I obtained while working as Moynihan Fellow of the Association of Surgeons, and subsequently.

Transfusion Syringes

In most transfusion syringes there is a two- or three-way tap by means of which the syringe is connected on filling with the blood and with the patient's vein on being evacuated. The types include the three-way direct flow, rotanda, Jubé—used in Great Britain; and Tsanck, Oehlecker, Unger, Soresi—patterns used elsewhere. I had an experience of over two hundred transfusions with the special blood-transfusion syringes before giving up this method. My reasons for abandoning the syringe method are stated below.

General Criticisms.—(i) Multiplicity of parts. A syringe manufactured in this country has eight parts, five of them vital. If one of these is forgotten or lost or has become interchanged with another syringe of the same pattern, the transfusion cannot be given by that syringe. In addition these multiple parts take time to assemble. (ii) Syringes have to be sterilized: if this is not done until immediately before the transfusion the glass barrel must be left some time before it will be cool enough to fit the plunger. (iii) Syringes may break or crack while boiling to sterilize, while in use if any strain is put upon the joints, while cleaning after the transfusion, or in transit. (iv) Syringes are expensive to repair and replace. Replacement of the glass barrel of one pattern of syringe costs 12s. 6d. (v) An assistant is usually required. It is not easy for anyone inexperienced with special blood-transfusion syringes to give the transfusion without help. (vi) Many syringes are of foreign make; representatives who have undertaken to do repair work are few and far between, and are usually out of the spare part when it is required. In many cases the syringe has to be sent abroad, which involves an irritating delay. (vii) The all-metal syringe is not a solution of the problem, since these syringes dent, which is even worse than breaking. Another disadvantage of the all-metal syringe is that the blood cannot be seen during injection.

Disadvantages During the Transfusion.—(i) The blood cannot be introduced at a drip rate. (ii) The flow is intermittent, not continuous, and it cannot be observed. (iii) The transfusion does not "give itself," as the syringe has to be held and worked throughout. The result of this is fatigue and a tendency to give the transfusion too quickly. (iv) Syringes stick. This can be a very serious matter, and may involve abandoning the transfusion. Jamming may still occur in spite of careful cleaning, the use of liquid paraffin, and assembling while cool. (v) Syringes leak. This does not matter very much, but it is unsightly.

Flask and Bellows

Positive air pressure as a means of introducing blood was employed by Robertson towards the end of the great war. "Robertson's bottle" was later improved by Keynes (1920), and this apparatus has in turn been modified by McCartney (1933). The principle of these methods is to create a positive pressure in the flask or bottle used by means of bellows attached to a side-arm. The pressure exerted on the surface of the blood displaces it through an outlet tube, from which it passes by way of a length of tubing to the patient. The difficulties that may be met with in the course of a transfusion, for example with Keynes's apparatus, will now be mentioned.

General Criticisms.—(i) The assembly of the apparatus has to be done in relays. (ii) There are multiple joints, each of which is a point of insecurity. (iii) Two accurately fitting rubber bungs are required. If the apparatus is not very often in use the rubber stiffens and is no longer air-tight, either at the sides or at the central perforation. On one occasion in my experience, when the bung was produced after a long interval, it could not be used on account of the stiffening. McCartney (1933) has overcome this particular difficulty by substituting a metal screw cap carrying an inlet and outlet tube in the place of the rubber bung. This has the advantage that it is a standard fitting for the screw-cap bottle described later, and so will last indefinitely. (iv) If too great a positive pressure is raised within the flask the rubber bung will blow out. If at the end of the transfusion the positive pressure within the flask is not first released before withdrawing the needle from the vein a considerable escape of blood will take place. If the level of the blood is not noticed towards the end of the transfusion it is possible that it may all be injected and be followed by the air in the flask, with the possibility of air embolism. (v) In spite of the air trap there is sometimes difficulty with air locks.

Rotary Pump

Transfusion with the rotary pump combines the advantages of an apparatus capable of exerting a positive pressure with those of the simple gravitation method. Excellent as the simple gravity method is for most purposes, there are occasions when it is essential to be able to exert a controlled positive pressure. This is particularly necessary in cases of collapse—when the vein may be in spasm and offer resistance to the inflow of fluid—and in transfusing infants. Quite apart, however, from these absolute indications for the exertion of a positive pressure during injection, the general conduct of any transfusion is greatly simplified by means of a rotary pump if there is one available.

The pump fulfils the following criteria which may nowadays be demanded of a "special" transfusion apparatus: (i) The propelling agent should be ready for use at all times and should not require sterilizing or assembling. (ii) It should be so constructed that there are no detachable parts which might get lost or interchanged. (iii) So far as possible it should be indestructible and not subject to mechanical failure. A "special" transfusion apparatus should also fulfil the following general principles.

(*a*) It should be possible to operate the method single-handed; to introduce the blood at a drip rate; to exert a definite positive or negative pressure whenever desired; and to change over at any time to the injection of another fluid such as glucose-saline solution. (*b*) It should enable a clean surgical operation to be performed. (*c*) Once started, the transfusion should be capable of "giving itself"—that is, by gravity or siphonage. Apart from fulfilling these conditions an important feature of the pump is that it allows a constant negative pressure to be maintained while the attempt at venepuncture is being made.

The principle of the pump (Fig. 1) is merely the action of a cylindrical roller massaging a rubber tube backed

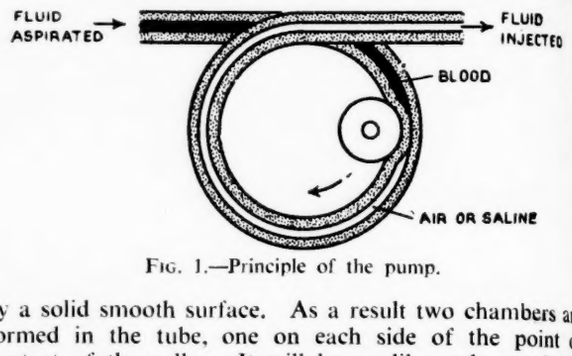

FIG. 1.—Principle of the pump.

by a solid smooth surface. As a result two chambers are formed in the tube, one on each side of the point of contact of the roller. It will be readily understood that as the roller moves along the length of the tube the chambers will vary proportionately in volume. The chamber behind the roller will increase in volume and suction will be produced. The chamber in front of the roller will be reduced in volume and compression will be obtained. By looping the tube in a cylindrical cup in which a roller revolves from a central axle the same effect is produced in a more limited space.

Description.—The pump consists of an aluminium casting, the centre of which is bored out so as to form a well with straight sides two inches in diameter and one inch deep. In the centre of the base of the well is the rotor. The lower end of the rotor is in the shape of a circular disk, which can be rotated by means of a crank handle at the upper end. Between the crank handle and the disk revolves the roller which compresses the rubber tube against the wall of the well. The spindle on which this roller revolves is provided with eccentric end bearings for the purpose of varying the pressure on the rubber tube.

A rotary pump was described by Noel in 1876, and a more recent model has been elaborated by the French

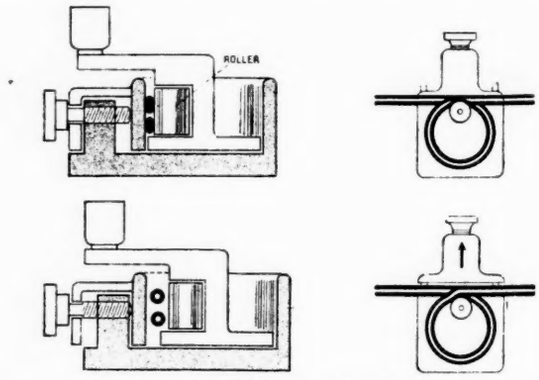

FIG. 2.—The drip adjustment.

Vice closed (upper two diagrams): Tubing is compressed between roller and wall of well; the flow of blood is stopped. Vice opened (lower two diagrams): Pressure on tubing is released as the adjustable segment of wall of well moves away; blood will now flow by gravity.

engineer Henry (Lee and Macnab, 1935). The French hand pump known as the Henry-Jouvelet apparatus was intended for direct arm-to-arm transfusions, and was not designed for transfusions at a drip rate, for which it is unsuitable. It is also necessary to work this machine by hand continuously throughout the transfusion. These

and other disadvantages made this particular apparatus unsuitable for the transfusion of citrated blood.

THE DRIP ADJUSTMENT

The new pattern of rotary pump seen in Fig. 2 has been devised so as to allow of "automatic" transfusion at *any* rate of flow. This has been achieved by making a section of the wall of the well movable. A segment of the wall forming the well is adjustably mounted on a projection of the base and the radial movement of this segment is controlled by a screw. The reason for this adjustment is twofold: first, it serves the purpose of introducing the rubber tube into the well and clamping it in position in the two lateral channels which enter the well at a tangent; secondly, the screw adjustment acts as a drip regulator when the roller remains stationary opposite the movable segment.

In use the pump may be steadied by screwing it to the operating table or a side table such as the patient's locker. A more practical arrangement than this is to combine pump and bottles in such a way as to form a transfusion unit.

Transfusion Unit

Considerable delay can take place before a transfusion is under way, whatever method is used. This is due to the disjointed nature of the usual transfusion apparatus—

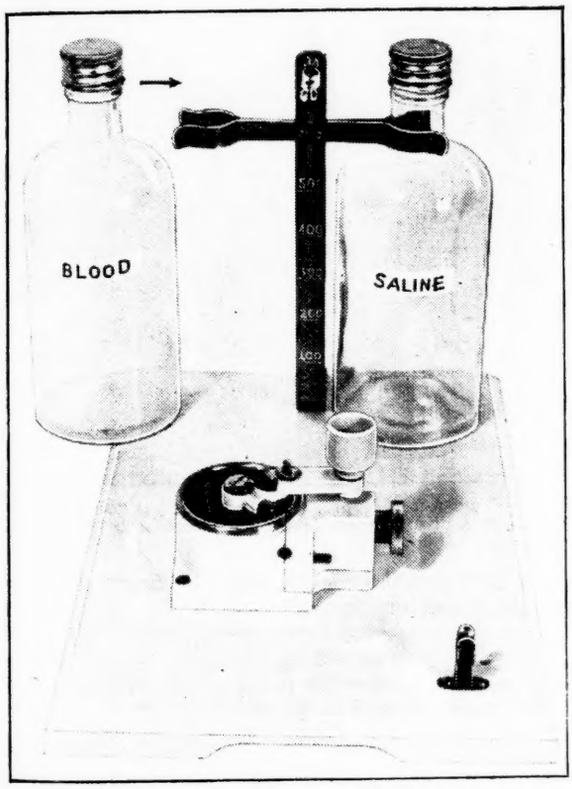

FIG. 3.—The transfusion unit. Note that the dangerous area round the mouth of the bottle is well covered by the screw cap.

the propelling agent, the bottles, the tubing, and the thermometer each forming a separate item. This disadvantage can be overcome by combining the various components into a single unit. In this way the efficiency of the method is appreciably improved, the technique is simplified, and the apparatus stabilized. Such a unit is readily arranged when the pump is employed, as this does not require sterilizing, and it is therefore always ready for use. By fixing the containers at one end of a small board and the pump at the other the transfusion unit seen in Fig. 3 is produced. In this manner is formed a strong stable platform from which the transfusion can be directed without interruption.

The bottles are secured by means of spring clips, which project from each side of a central strip of metal carrying a scale graduated in centimetres. By having a scale in this position the expense of graduation is avoided when using the standard capacity twenty-ounce screw-capped Winchester bottles for both saline and blood. The spring clips are so placed in regard to height that they grip the bottle neck immediately above the shoulder. In this way the bottles are held down as well as in, so that there is no rattling in transport. The unit is covered by a lid, which has a removable box occupying the space over the pump in which extra apparatus, such as tubing and instruments, can be carried. In this way all dead space is obliterated.

The apparatus required for a transfusion, in the order in which it is assembled, will be: recipient needle; collapsible tubing, two inches; glass window; pressure tubing, five feet; glass dropper; rubber bung; filter. They should be kept sterilized and assembled as a unit, so that they may be ready for immediate use. They readily make up into a small compact parcel. In addition there will be required: the transfusion unit with rotary pump; screw-cap bottle—blood; screw-cap bottle—glucose saline; a jug of warm tap-water (104° F.); and the usual requirements for local anaesthesia and skin preparation.

Standardized Apparatus

In visiting several hospitals to see transfusion work one of the most striking differences I noticed was in the type of bottle or flask used as a container for the blood. There was a great variety of these, no two hospitals using the same shape or size or obtaining them from the same firm. The majority of containers were hand-made, which from the economic point of view is unsound, because the cost of a glass vessel is much greater when it is hand-blown than when it is cast in large numbers from a mould. Again, with the hand-made bottle varying quantities of glass are taken up each time, so that its capacity and the inside diameter of the neck are not constant. The practical outcome of this is that a rubber bung which will fit one bottle tightly will fall through the mouth of another. It is desirable, then, from the point of view of expense and to obtain uniformity of size and capacity, that the particular transfusion bottle chosen should be of a design that is manufactured in large numbers.

Screw-cap Bottle.—The bottle which appears to fulfil most closely the required conditions is the twenty-ounce screw-capped Winchester bottle. This pattern is already being used in many of the larger London voluntary hospitals and throughout the London County Council hospitals as a standard container for intravenous solutions (McCartney, 1933). It is mass-produced in a large range of different capacities—although the pint size is the most suitable for transfusion work—and it is made in plain and amber-coloured glass. The bottles cost a few pence each. They are manufactured by the United Glass Bottle Manufacturers Ltd.

I think it is particularly important that the glass rim surrounding the mouth of the bottle chosen should be protected from dust collection. This is best achieved by means of a screw cap which covers the whole of the dangerous area. The alternative arrangement in which the mouth of the bottle is closed with a glass stopper or rubber bung allows dust to collect on the rim, whence it may be displaced into the blood during the act of pouring from one vessel to another. The

screw caps are made of aluminium, are lined with cork or rubber, and are very cheap.

Tubing.—The tubing should be long enough—five feet—to allow the pump to be raised well above the level of the vein chosen. It should be "pressure" tubing of a size which can be accommodated by the pump—that is, tubing with an external diameter not exceeding 9/32 inch (internal diameter, 5/32 inch). It is important to use pressure tubing, as ordinary tubing is not satisfactory in the pump; the pressure tubing also has the advantage that it is much more durable and can be used repeatedly, provided Lewisohn's method of cleaning it is meticulously observed (Lewisohn and Rosenthal, 1933). Sterilization should be by boiling, as rubber tubing does not autoclave satisfactorily, but becomes hardened in the process, due to vulcanization. The needle should be joined to the glass window by a very short piece of collapsible tubing. This plays a special part during venepuncture.

Glass Window.—The glass window should be placed close to the needle. It sometimes happens that this observation window is separated from the needle by six inches or more of tubing. In such a case, in order to confirm the point of entry of the needle into the vein, blood must be withdrawn through a greater length of tubing than is necessary, which increases the risk of clotting.

Filter and Glass Dropper.—If necessary the transfusion can be performed without the weighted filter or the dropper, but both should be included if available, particularly the visible feed. The Luer-Lok pattern of filter is advised. If no weight is used the end of the tubing resting on the bottom of the bottle should be notched, so that when suction is made it will not stick to the bottom of the glass. If no dropper is used the rate of flow must be determined by observing the fall in the level of fluid in the bottle. The output per revolution is also constant, being approximately 1 c.cm., but this is an unnecessarily tedious method of calculating the volume injected.

Glucose Saline.—Isotonic glucose saline or simply normal saline may serve several purposes: (i) By filling the tubing with this solution rather than with blood at the outset a translucent medium is provided at the level of the observation window, so that when blood is drawn from the vein it can be clearly seen. This is a point of great practical importance in securing a successful venepuncture, and it also makes the operation cleaner and avoids any possible wastage of blood. (ii) By starting the transfusion with glucose saline the optimum moment for introducing the blood can be chosen. (iii) In an emergency it will save time to begin the transfusion with glucose saline while waiting for the donor to arrive. Then when the blood has been drawn it is only necessary to change the tubing across from one bottle to the other.

The Transfusion

After the preliminaries of sterilization and assembling have been completed the procedure is as follows:

(i) The end of the tubing carrying the plunger is lowered into the saline.

(ii) The distal portion of the tubing is kept stabilized and sterile by placing the needle in the clip provided.

(iii) The middle portion of the tubing is threaded into the metal cup and the vice closed.

(iv) The handle of the pump is turned in a clockwise direction to displace all the air in the tubing until saline drips from the end of the needle and no more bubbles pass the window. A suitable vein is chosen and some form of proximal compression applied to the limb. The overlying skin is prepared and a small wheal raised with local anaesthetic. The injection is now ready to begin, with the tubing still in the saline.

(v) The needle is inserted, and as soon as it is thought that the vein has been entered,

(vi) the operator's free hand turns the handle of the pump through half a circle in an anti-clockwise direction. Blood will immediately flow into the window if the needle is in the vein. (For failed venepuncture see below.)

(vii) The pressure bandage is now slackened and the injection of saline begun.

(viii) Only when the infusion is seen to be proceeding satisfactorily is the tubing lifted out of the saline bottle into the blood, the injection being stopped while the change-over is made. If a two-way tap is included in the length of the tubing there is of course no need to stop the transfusion while the tap is switched across from saline to blood.

(ix) The needle should be secured in place with a piece of strapping.

The transfusion may now be continued by hand or by gravity. To continue by gravity it will be necessary (Fig. 4): to raise the blood and the pump (the unit) to a higher level than the selected vein, the height depending on the resistance to the inflow, which in turn depends chiefly on the bore of the needle employed; to turn the handle of the pump to the mid-position, as in any other position it will obstruct the tubing; and to unscrew the vice until the required rate of flow is obtained.

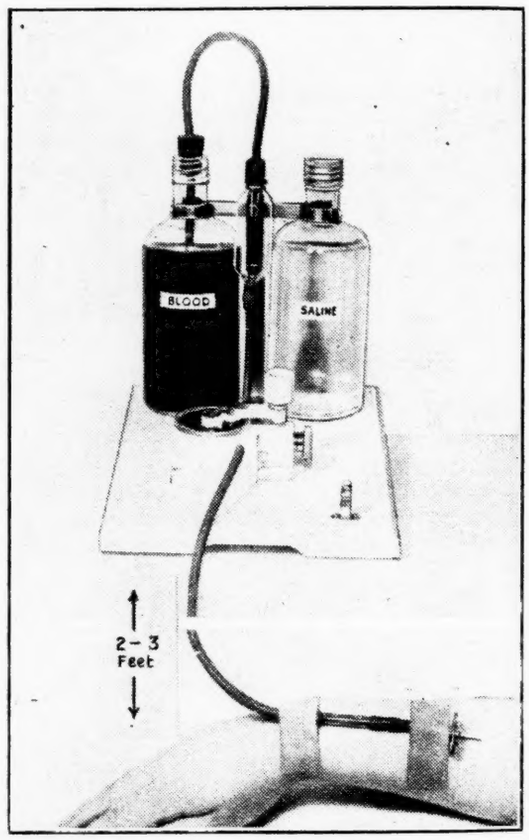

FIG. 4.—Transfusion in progress. The blood is being introduced at a drip rate into the radial vein of the forearm.

It is always best to attempt a difficult venepuncture in three stages: (i) insertion of the needle beneath the skin; then (ii) exertion of a negative pressure, followed by (iii) the attempt at venepuncture. If after inserting the needle beneath the skin negative pressure is made, the tubing between the needle and the window will collapse as the result of the suction exerted when the pump handle is turned. Without removing the point of the needle from the tissues its position can be changed until the lumen is successfully negotiated. With the entrance of the needle into the vein the walls of the collapsed tubing suddenly distend and blood is seen in the window. This deliberate collapsing of the tube is a most helpful manœuvre in a difficult venepuncture.

Management of Transfusion with Rotary Pump

Once the needle is in the vein the handle of the pump need not be used again except in those few cases in which it is necessary to make a positive pressure throughout the transfusion—for example, to overcome venospasm in a shocked patient. In the majority of transfusions the handle of the pump is merely used as a convenient instrument to start the transfusion, which is thereafter continued by siphonage at a drip rate. In a long transfusion it is an advantage to be able to exert positive pressure from time to time during the course of the transfusion. In this way the tubing can be flushed through at intervals, so that any tendency to clot formation or obstruction is diminished. Once every hour, after first closing the vice, the handle should be turned three times in a clockwise direction: once every six hours the tubing should be transferred for a short time (fifteen to thirty minutes) to saline.

For transfusion at a drip rate—that is to say, the majority of transfusions—there is no need to heat the blood in the container above room temperature level. It is good practice, however, to bandage (over cotton-wool) the last six inches of tubing to the patient's arm so that all the body heat available may be transmitted through the tubing to the blood just before it enters the patient. In the few cases of rapid transfusions the blood bottle should be kept in a bowl of water at 104° F. until the vein is required for injection—that is to say, until the blood has been entered and the saline is running without obstruction. This should be carried out systematically every half-hour; it takes only a moment or two. The pump may be removed at any time in the course of the transfusion provided that an ordinary screw clip is attached to the tubing in its place. The transfusion continues by siphonage.

Difficulties

The difficulties met with are all due to actual or partial obstruction. Air locks do not cause trouble by this method. If the drip rate slows or stops there is either an insufficient head of pressure to maintain the flow or there is an obstruction. Before assuming that an obstruction is present the height of the transfusion unit should be checked.

To maintain a satisfactory flow the bottle of blood in the transfusion unit should be at least three feet above the level of the selected vein. If raising the unit does not restart the flow there is probably an obstruction in the filter or in the needle.

Obstruction in the Filter.—(i) The fine mesh of the filter may be blocked by clot. If this is suspected the transfusion should be temporarily stopped without withdrawing the needle; the filter is then removed. While the filter is being cleaned the transfusion can be continued by placing the tubing in the saline bottle. (ii) The filter may be resting on a portion of clot at the bottom of the bottle. To test this raise the filter; if the flow then restarts it will be unnecessary to do any more than suspend the filter so that it is clear of the upper surface of the clot.

Obstruction in the Needle.—(i) Malposition. Before assuming the needle is blocked the position of the limb should be altered—for example, at the elbow some degree of flexion is usually advisable. If the elbow is fully extended I have noticed that there is a tendency to intermittent obstruction. If changing the position of the limb does not restart the flow the position of the needle should be examined. The shaft of the needle may be lying obliquely to the length of the vein instead of in the same line; or the point of the needle may be directed against the anterior wall, when it can be felt beneath the skin. This fault can be corrected by placing a small pad under the hilt of the needle, which by raising this part depresses the point. (ii) Clot. If the flow does not restart after checking the possible causes enumerated above, the handle of the pump should be turned gently in a clockwise direction. Obstruction is shown by a rise in the level of blood in the drip bulb. In the case of true obstruction the needle must be removed, the tubing washed through with saline to clear it completely of blood, and the transfusion started afresh by introducing the needle into another vein, preferably in the opposite limb.

Summary and Conclusions

Transfusion by a gravity method is the simplest and safest method of transfusion for general use.

In special circumstances it will be quicker and more practicable to use an apparatus designed solely for blood transfusion purposes.

The special apparatus selected for a detailed description as being the most reliable is the rotary pump.

The particular advantage of the pump is that it is always ready for use, so that there is a minimum amount of apparatus to be prepared and to sterilize.

The efficiency of any method is increased by uniting the propelling agent with the other components of the method, so as to form a co-ordinated transfusion unit.

The disadvantages of methods depending upon air pressure and injection by syringes are outlined.

I am indebted to Mr. R. Schranz of the Genito-Urinary Manufacturing Company for his help in the development of the rotary pump.

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The tenth International Congress of Military Medicine and Pharmacy was held at Washington from May 7 to 15. After preliminary social gatherings and a dinner the scientific proceedings began with a discussion of the organization and functioning of the health services in war-time, opened by speakers from the United States and Italy. This was followed at once by a debate on the practical procedures of anaesthesia and analgesia applicable to surgery in war, the opening speakers being from the United States and Brazil. The next topic was the organization and operating of military chemico-pharmaceutical work. On the next day speakers from Germany and the United States discussed the methods of estimating casualties beforehand in war-time, and on the third day of the scientific sections attention was directed to the urgent treatment and the first-aid apparatus desirable for maxillary fractures on the battle-field, the first speakers being the representatives of Great Britain and the United States. This was followed by a survey of the technical specialization of the administrative officers of the sanitary service, and then a debate followed on oxygen therapy and how it could be utilized for troops in the field. During the congress visits were paid by the delegates to various centres of medico-military interest, including hospitals and laboratories, the United States Navy Yard, the Army Medical Museum and Library, the Smithsonian Institute, and the Medical Field Service School at Carlisle, Pennsylvania. Practical demonstrations of field work were given by the First Medical Regiment, and by the cadets of the United States Naval Academy at Annapolis.

AFTER-RESULTS OF CHILD GUIDANCE

A FOLLOW-UP OF 500 CHILDREN TREATED AT THE TAVISTOCK CLINIC, 1921–34

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In comparison with other long-established methods of dealing with difficult and nervous children, child guidance is still very much in its infancy, and its effectiveness is open to doubt. The criterion of successful treatment should be lasting good health in the patient in subsequent years; but even where this is achieved, it is impossible to judge exactly the contribution made by other circumstances towards the patient's cure. The study of controls is a means of obtaining greater accuracy with regard to effects of treatment, but many factors prevent the proper functioning of untreated groups as controls, and a comparison of identical twins, which represents an ideal experiment, can only be made on relatively rare occasions.

In a study of 687 children in eight elementary schools, with the help of the head teachers and their associates, McFie (1934) attempted to discover whether children's problems tend to clear up without psychiatric treatment during their school career. Having presented a table of results, she writes: "After scanning these figures we can say that very few problems are cleared up completely, and that apparently in the bulk of cases no improvement can be detected in the child's school career. Beyond this we should not be prepared to go." This study of McFie's is the only attempt known to us in this country to obtain an untreated control group for comparison with the results of psychiatric treatment. Some additional support for McFie's conclusion is obtained from experience with adult patients. Neuroses are rarely found to have developed in adult life, but have their roots in childhood. The earlier troubles not only persist but become worse.

The Present Investigation

In the work now reported an attempt has been made to follow up all discharged patients (excluding those coming for consultation only) who have attended the children's department at the Tavistock Clinic between 1921 and 1934. After sending 1,330 inquiries, a group of 500 patients who had been discharged for at least three years was eventually obtained. In 102 cases relations or referring agencies were out of touch, 201 letters were returned "address unknown," eight patients had died, and the remaining 519 did not reply.

Any conclusions based on a study of 500 out of 1,330 cases are open to criticism on the grounds that there is special selection; that in those who do not reply treatment was the least effective. Luff and Garrod (1935), in their study of 500 adult cases, have suggested that this criticism may not be valid, by the observation that the percentage relieved, at the time of discharge from treatment, was similar in both the group that did and the group that did not reply. In the present study the percentage of cases relieved at discharge among the 830 untraceables was approximately the same as that in the group of 500 who were actually investigated. Although this difficulty arises in all follow-up investigations, it seemed advisable to attempt an additional check-up visit on a group of those who did not reply, ascertaining the reason in each case. For this purpose 150 cases were taken, selection being based upon arbitrarily chosen postal districts in London. To avoid any intentional evasion of the interview, no introductory letter was sent stating that a visit was to be made. In seventy cases it was found that the patient had moved, address unknown; in twenty-nine cases no reply could be obtained at the door. Of the fifty-one cases who were seen, forty (78 per cent.) were found to be in the "relieved" group. The remaining eleven (22 per cent.) were either not relieved or had had further treatment. The reasons given by the fifty-one patients for not replying were: resentment over reference to the clinic or wishing to forget the past, twelve cases; that the questionary was not received, twenty-five cases; and indifference or illness ("had intended to reply"), fourteen cases. In two cases only was objection made to the visit. These results provide no evidence to suggest that the general conclusions of the present paper, based upon the 500 cases in which replies were obtained, are invalid. It would, however, be unwise to conclude that similar results need necessarily follow in all follow-up inquiries in this field.

The main investigation was made by sending out inquiries in the form of a questionary to the parents of the younger patients, and to the patients themselves if over 17, unless it seemed unsuitable, as in the case of certain delinquents. In a few cases the referring agency or someone known to be closely in touch with the patient was approached rather than the parents. The questions were composed with a view to obtaining as much information as was compatible with simplicity and the avoidance of ambiguity. "Yes" or "No," without further detail, was often received in reply to some questions; on the other hand, many answers threw light on more than one question.

Follow-up Inquiry

The following is an example of the form sent to parents:

1. Is he keeping better?
2. Have you had to see any other doctor about him? If so, for what reason and where?
3. Have there been any other difficulties or troubles?
4. Is he in good health?
5. What work is he doing, and how is he getting on? Have there been many changes of employment? If so, for what reason?
6. What does he like most to do in his spare time?
7. Have you anything special to tell us?

In order to obtain a check on the conclusions drawn from replies to the questionary, a group of 160 cases were specially investigated, selected entirely by geographical distribution. The majority were visited in their homes, while the others were seen at the clinic. In a questionary relating to children additional difficulty arises where the reply is sent by a parent. To quote from Gillespie and Lay (1936) in this connexion: "Symptoms are by definition what the patient complains of, but in children they are much more often what the adult complains of as appearing in the child." One case met with in our inquiry was that of a patient, now grown up, who complains of an "inferiority complex," "weeks of depression," and suicidal inclinations, although the last report from his mother gives a very different impression. This describes a complete cure of nervous tics and the procuring of a job. In spite of the many possible sources of error, the differences between the assessment of the patient's condition judged by the answers to the questionary and by visiting were so small as to suggest that the conclusions of a follow-up inquiry conducted solely by letter can be reasonably accurate (Table I).

Comparison between Questionary and Visiting Assessments

TABLE I

	Result of Treatment			Total Cases	Percentage Relieved
	Apparent Cure	Improved	Not Improved		
Questionary	36	87	37	160	78
Visiting ..	40	81	39	160	76

An analysis of the replies received to the questionary is given in Table II. The term "apparent cure" means that the patient no longer suffers from his original complaint; "improved," that the complaint continues to a modified degree and may still be a handicap to the patient. Under the latter heading are a large number of cases that report "better" but give no details. In all tables the term "relieved" denotes a degree of improvement in the patient's condition ranging from "cure" to "some improvement," and refers to the relief of the actual complaint for which the patient was referred.

Present Condition of Patients

TABLE II

	Result of Treatment			Total	Percentage Relieved
	Apparent Cure	Improved	Not Improved or Further Treatment		
No. of cases	111	242	147	500	71
Percentages..	22	49	29		

A group of seventy-one cases listed under "further treatment" has been included in Table II with the seventy-six "not improved" cases because many of them do not appear to have received benefit from treatment here. We have reports of their present condition, however, and some of them have improved since. If the present condition of the patients is taken as the criterion, irrespective of any further treatment, the percentage relieved is 78. "Further treatment given" falls under the following headings:

Private or out-patient treatment elsewhere	28
Approved schools and Borstal institutions	16
Mental defective institutions	14
Mental hospitals (in-patients)	11
Epileptic colonies	2

Table III shows the condition, first, on discharge from the clinic and, secondly, at present, of a group of cases afterwards treated elsewhere. It indicates the difficulties in judging, except in the case of approved schools, to what extent further treatment and how far the original clinic treatment have been responsible for the improvement.

Results of Further Treatment

TABLE III

Treatment	Condition on Discharge		Present Condition	
	Relieved	Not Relieved	Relieved	Not Relieved
Private or out-patient	12	10	13	9
Approved schools ..	3	13	10	6*

* These six are still in approved schools.

The final group of 500 cases was subjected to exhaustive analysis in an attempt to determine whether the proportion of cases relieved was representative of the whole or an average concealing wide variations in differing conditions and under different circumstances. Here the question of further treatment has been ignored, and the figures are based on the present condition of the patient in all cases.

Present Condition of Patient in Relation to Complaint

Classification in terms of diagnosis, such as "behaviour disorders," "personality traits," and "hysterical states," is liable to serious misunderstanding in the present state of our knowledge of these conditions in children, and in this report cases have been grouped under headings of "symptoms complained of." These are largely self-explanatory (Table IV). Under "difficult to manage" are included complaints of an aggressive nature (other than tempers)—disobedience, obstinacy, quarrelling, and refusal to eat—where the parents find their efforts at correction of no avail. General symptoms of anxiety include "nervousness," shyness, timidity, apprehensiveness, sleeplessness, and "highly strung condition." Specific fears, such as fear of noise or of the dark, have their own category and are not included under "nervousness." "Physical" symptoms include fits, asthma, and bodily complaints having no apparent physical cause.

TABLE IV

Complaint	No. of Cases	Relieved	Not Relieved	Percentage Relieved
(1) Stealing	87	77	10	88
(2) Backwardness and educational difficulties	62	37	25	60
(3) Difficult to manage	53	43	10	81
(4) Enuresis	45	33	12	73
(5) Speech difficulties	45	35	10	78
(6) General symptoms of anxiety	44	39	5	89
(7) Physical symptoms	33	24	9	72
(8) Tics, habit spasms, and nail-biting.	31	18	13	58
(9) Tempers	27	23	4	85
(10) Fears	23	21	2	91
(11) Masturbation and sex difficulties	17	15	2	88
(12) Truancy and wandering	13	10	3	77
(13) Various	20			
Total	500			

This table was worked out in greater detail with regard to degrees of improvement, but nothing of significance was revealed except that stealing was the one complaint that showed over 50 per cent. apparent cures. This may be explained partly by the fact that stealing is a symptom about which there can be little doubt in the minds of parents as to its persistence or disappearance (in contrast to "fears," for instance), and partly by the fact that only twenty-four out of eighty-seven were court cases (which are more severe but often difficult to trace). The remaining sixty-three cases were for the most part minor, though often very persistent, thefts at home or at school. A number were stepchildren or adopted children showing definite maladjustment in their relationship to their step- or foster-parents. Sometimes the theft would appear to have been a self-assertive reaction, and it ceased after discussions with the parents as to discipline and outlets for initiative. It is worth noting that only five out of the forty-seven cases listed as cured on discharge had had any relapses since treatment, while four had developed other nervous symptoms. The relatively low percentage of relieved cases in the backward group can be partially explained by the inclusion of some mental defectives, these being accepted for treatment in the early days of the clinic. It was noticed that several children whose main treatment comprised coaching in arithmetic had made no headway in that subject although their general school adjustment had improved considerably after attending the clinic.

Sex Incidence

TABLE V

	Number of Cases	Percentage Relieved
Boys	298	78
Girls	202	78
Total	500	

Here our findings correspond in the main with those of Guy's Hospital (Hardcastle, 1934), both in the greater incidence of boys than girls referred and in the similar degree of improvement in the two sexes. This table was also worked out in greater detail, the only point emerging being a slightly higher percentage of apparent cures in the case of girls than of boys. When an attempt was also made to discover whether there was any difference in the relief of the various complaints as between boys and girls, the percentages showed a striking correspondence. The contrast in sex incidence between an adult and a children's group of patients was referred to in Luff and Garrod's follow-up study of adult patients (1935). Their 500 cases consisted of 39 per cent. men and 61 per cent. women, whereas ours contained 60 per cent. boys and 40 per cent. girls. We would agree with them in their comment:

"The preponderance of boys may, to some extent, be due to the fact that their psychoneurotic symptoms tend to take a more spectacular and socially difficult form than those of girls, so that parents and others in authority are more likely to realize the need for treatment among boys. . . . It is possible that the present form of social organization gives a better chance for boys who show neurotic symptoms to adjust as they grow up, whereas girls who may possess only a latent tendency to neurosis in childhood develop more definite symptoms in later life."

Age is analysed in Table VI, from which it appears that this is not an important factor in determining the success of the treatment.

Age Groups

TABLE VI

	No of Cases	Percentage Relieved
0–5 years	81	80
6–11 „	226	76
12–14 „	126	80
Over 14 „	67	73

Position in Family

TABLE VII

	No. of Cases	Percentage Relieved
Eldest	141	80
Youngest	97	78
Having older and younger siblings	114	71
Only child	110	78

The position in the family was recorded in 462 cases, and there was no striking difference in the figures as between one position and another. No conclusion can be drawn from the high incidence of eldest children in our group, as the incidence in the general population is unknown. An investigation of the position in the family in relation to the different complaints revealed few striking variations with regard to results of treatment. Though the whole table is not reported in detail it is perhaps worth mentioning that the incidence of cases in Groups 3, 7, 9, and 10 (Table IV—"Difficult to manage," "Physical symptoms," "Tempers," and "Fears") was relatively high among "only" children. This is true also of youngest children in relation to Groups 3 and 9. On the other hand, the incidence of patients in Groups 1 and 12 ("Stealing"; "Truancy and wandering") was relatively low for both "only" and youngest children. These findings are unlikely to cause surprise, and do not seem to call for further comment.

Intelligence Quotient

TABLE VIII

	No. of Cases	Percentage Relieved
Under 70	15	60
70–89	36	69
90–109	91	83
Over 109	83	76

In the early days of the clinic intelligence tests were not given in every case: they were recorded in 225 of the present series. Children of average intelligence show the highest percentage of relieved cases, followed by those of above average. If, however, one takes a group of thirty-eight children having high intelligence quotients (over 120) the percentage falls considerably, as thirteen were found to be making no improvement; for the most part this was not owing to lack of outlet for their abilities, but to the effect of an unfavourable home background upon highly sensitive children. It has been suggested that no satisfactory conclusion can be drawn from a study of intelligence quotients in relation to results, because the age of the patient affects the outcome of treatment more than does the intelligence quotient, so that a child of 14 responds better to treatment than a child of 6 with the same intelligence quotient. We can find little support for this suggestion in the material presented in Table IX.

TABLE IX.—*Percentage of Patients Relieved in Relation to Intelligence Quotient and Age*

	Intelligence Quotient			
	50–69	70–89	90–109	Over 109
0–8 years	66	66	85	82
9–12 „	60	58	86	82
13 and over	50	80	90	82

Length of Treatment

With children, treatment may consist of so much besides actual clinic attendances (social work, temporary placement, advice to parents, and the school, for example) that it is not possible to assess its amount numerically as between one patient and another in terms of the number of attendances. It may be said, however, that the records give no support to the view that superior results are necessarily obtained from long rather than short methods of treatment.

Continuance of Improvement through Adolescence

It was suggested at the last Inter-Clinic Conference of the Child Guidance Council that for the estimation of the success of any type of treatment a follow-up cannot be regarded as reliable unless the child has been followed through "the strains and stresses of adolescence." In order to test the truth of this statement, which suggests that success of treatment before adolescence may be followed by subsequent breakdown, we worked out the "relieved" rate among 121 patients in our group now aged 20 and over. The resulting figure is 77 per cent., corresponding almost exactly with that of the whole group. This is not to say that none of these suffered adolescent difficulties, but it does seem to show that the good results of treatment given before or during adolescence persist as well through that as through any other period.

Various Comments on Replies and on Cases Visited

TONE OF REPLIES

On the whole the individual content and tone of the replies reflected that of the treatment records. There were exceptions, in that some uncooperative parents who had ceased bringing their children for treatment, or who had replied to previous inquiries in a disgruntled tone, completed this questionary in glowing terms, attributing improvement to clinic advice and offering to bring the children for inspection. This shows that broken treatment need not indicate a bad prognosis.

PARENTAL SITUATIONS

Note was made of the home situation in each case—for example, whether both parents lived in the home, whether there was a step-parent, or whether the child was adopted. Out of twenty-seven patients having either a stepfather or a stepmother, eleven were reported as "not improved," and there was good reason to think in each case that the cause was to be found in the step-parent's attitude.

GENERAL CONDITION OF PATIENTS

In certain symptomatic groups, especially in those of stammering and enuresis, the relief of the symptom does not necessarily indicate an adjusted personality. Several children whose stammers had cleared up were reported to be "unhappy," "languid," or "abnormally reserved"; and one older patient revealed an obsession in connexion with his general health though his bed-wetting was very much improved. In certain cases parents who reported a cure of incontinence in their children mentioned at the same time a special interest on the patient's part in personal cleanliness and neatness. It was thought that this discrepancy between relief of the patient's symptoms and improvement in his general condition might have rendered our results unreliable, since they are only concerned with the former. We therefore assessed the general condition, so far as was possible from the replies, and found that in only 7 per cent. of the cases was there a notable contrast between the two assessments. Table X may be compared with Table II and the similarity of results noted.

TABLE X.—*General Conditions*

	Result of Treatment			Total Cases	Percentage Relieved
	Apparent Cure	Improved	Not Improved or Further Treatment		
No. of cases ..	139	215	146	500	71
Percentages ..	28	43	29		

PARENTAL ATTITUDES

The large majority, among both patients and their parents, considered that they had received help, though few could say definitely in what way. At one visit the continual repetition of the phrase, "Of course I never worry about his difficulties now," led us to suspect the opposite, particularly when mother and child were seen together. On the other hand, there were several parents who declared they had gained nothing by discussing their difficulties with the doctor or social worker, although their attitude belied this statement, and in the course of conversation they inadvertently quoted the doctor's words to uphold their own theories. A definite attempt at theoretical understanding had often been made by the unbalanced parent, whose psychological insight appeared to have an adverse rather than a beneficial effect upon the problem. One father, after studying the writings of the leading psychologists over a period of years, came to the conclusion that he was utterly unfitted for parenthood: his intellectual understanding of the problem seemed to have increased his anxiety until he was unable to allow any spontaneity in the relations between himself and his adolescent daughter.

In the group visited a subjective judgment was made of those cases in which patients had normal and apparently satisfactory parents and those cases in which the parent interviewed was definitely unbalanced or whose attitude was clearly detrimental to the child. The two subgroups were almost equal so far as numbers were concerned, but the unimproved cases were more than double in the latter. There were several cases in which social work with the parents had been carried on over a long period with apparently little effect at the time, but with eventual improvement in the child, traceable to a change in parental attitude. At the same time there were a large number of children who had made some improvement in spite of a persistently difficult parental attitude and who seemed likely to improve further as they got older. The intelligent adolescent who was beginning to grow away from his home and to find satisfactory interests outside was typical of this group. The three most neurotic parents (separate cases) visited were those of patients who had almost ceased to be problems. In each of these cases the child had good intelligence, and one was led to believe that the uninterviewed parent was a comparatively normal individual. Of the five unimproved patients with apparently well-adjusted parents, one was an epileptic, one a persistent enuretic, two were "nervous" children, one of whom had low intelligence and was continually trying to catch up with a successful and attractive older sister, and the fifth was a schizophrenic.

TYPE OF TREATMENT

Treatment had been very varied in type, ranging from simple advice to parents in a few interviews to lengthy treatment programmes involving, besides psychiatric interviews, play-therapy, coaching, social work, and foster-home placement: sometimes all these were applied to one case. It was not possible, therefore, to correlate type of treatment with results. Even if statistical evidence was in favour of one particular type, this would not preclude the use of other methods which happened to have been successful in a smaller number of cases.

SOCIAL STATUS AND GENERAL ENVIRONMENT

The majority of homes visited were comfortable and had no obvious signs of financial stress, but in many the attempt to live up to or above the standard of the neighbourhood caused great psychological strain. A "difficult" only child in a comfortable home was not allowed to mix with the neighbours' children for fear of acquiring an accent. In another very good home the shame brought upon the family by the daughter's small theft from school was reflected upon the child to an extent out of all proportion to the gravity of the crime, and the mother hardly dared leave the house for fear of meeting an acquaintance. On the other hand, in two of the poorest and most overcrowded homes, where the social environment was accepted, family relations were unstrained and the patient had ceased to present any serious problem. We are inclined to agree with Suttie (1935) when he says: "The incidence and importance of the nervous factor in illness is if anything less in the poor than in the rich." This conclusion is supported by Neustatter (1938).

With regard to this question of environment, perhaps we may once more quote from Gillespie and Lay (1936): "We have been surprised to find how readily psychoneurotic conditions in children subside on a mere change of environment; how they may stay away so long as the environment remains suitable; and how, if properly handled, they need not necessarily relapse on the return to the family." On the other hand, we have the experience of Healy and Bronner (1937), who lately carried out an extensive research in America, not on psycho-

neurosis in general but among delinquents: "We often regretted that, after foster-home placement or institutional life, a delinquent had to return to a home with the social pathology largely or entirely unaltered. All clinical observers inveigh against this; it presents so much essentially wasted effort, since so many cases then revert to their delinquent trends." In our visited group of cases we found examples corroborating each of these statements, and consider that they may both apply at times, not necessarily the one to psychoneurotic disturbances and the other to delinquency, but to almost any type of symptom. The children who seem to have derived lasting benefit from being sent away (and these were in the majority) all came from homes where relations had become strained to the point of creating an atmosphere thoroughly inimical to the child's recovery, but where the psychological environment was moderately healthy outside the sphere of the problem. The cases which relapsed soon after their return, though they had all improved during absence from home, came back to exactly the same aggravating atmosphere which they had left. In two of these, for instance, the mother had marked personality difficulties of her own, and in another the stepmother's attitude towards a delinquent boy prevented any chance of permanent recovery. The question then arises whether some attempt should be made to modify the environment during the child's absence and, if this is not possible, should the case be rejected from the first as unsuitable for treatment, thus leaving the time available for more hopeful cases? Healy and Bronner (1937), in the course of the research to which we have just alluded, divided their delinquents into three groups: in Group 1 are the "abnormal or the markedly neurotic personalities or those suffering from severe mental conflicts, and mental defectives"; in Group 2, "those where the social pathology was heavily weighted against successful treatment." The cases in these two groups, they concluded, were unsuitable for treatment. In Group 3 were "individuals whose personality or internal difficulties did not show extreme deviations and who came from conditions where the social pathology did not give evidence of greatly weighing against the chances of successful treatment. This does not mean that the cases were less severely delinquent or that none exhibited any signs of abnormality, neuroticism, and conflict, nor does it mean that there was no social pathology." Only in this group did they find cases which had justified to any extent the time and expense of clinic treatment.

A study of the unimproved cases in our follow-up group to a large extent upholds the truth of these findings. Again we are referring to all symptoms, not merely to delinquency. The obvious criticism, however, of this very careful selection of patients is that little progress can be made in methods of treatment if the more difficult cases are rejected, and that diagnosis is not such a simple matter as to enable cases to be neatly consigned to one group or the other. Some children recover in the face of apparently insuperable difficulties, and others retain their symptoms for reasons which often remain obscure.

Summary

A follow-up inquiry was carried out upon a group of 1,330 cases attending the Tavistock Clinic for treatment between 1921 and 1934; 500 replies were obtained and analysed.

Of those who did not reply 150 were visited to determine the reason for the lack of reply. The present condition of this group of patients was entirely comparable to that of those who did reply.

Of those who did reply a group of 160 cases were visited to verify the reliability of the written replies. No significant difference was found.

The inquiry showed that three years and more after cessation of treatment improvement in the condition for which the patient sought treatment is still present in over 77 per cent. of cases. If all the cases which received further treatment are excluded the figure is 70 per cent.

Little or no significant variation in the degree of improvement could be found as between the two sexes, in different complaints, or in relation to position in the family.

Those cases with average intelligence respond better than those above or those below average.

The proportion of cases relieved in a group of 121 patients who had passed through adolescence was the same as that for the whole group.

We wish to acknowledge the generous gift from an anonymous donor which enabled the investigation to be carried out.

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THE REMOTE EFFECTS OF PUERPERAL SEPSIS

BY

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The far-reaching effects of childbirth and its complications in the causation of maternal morbidity are well known to the medical profession, and the difficulty of assessing the bearing of this morbidity on the patient's future health is fully appreciated. In recent years, however, more detailed investigation of the problem has been strongly advocated by such authorities as McIlroy (1935), MacLean (1935), and the Departmental Committee of the Ministry of Health (1932). In 1937 Kenny published the results of such an investigation in a series of 100 patients.

One of the chief causative factors of disability resulting from childbirth is puerperal sepsis. This condition is almost always regarded, by the lay public at least, as a very serious illness which either terminates fatally or leaves behind a train of crippling symptoms and much ill-health. Accordingly, those of us in the medical profession who have had to deal with "puerperal fever wards" cannot fail to have noticed the ever-present anxiety of the patient and her relatives, not only for her immediate recovery but for her future health. It would seem, therefore, that an investigation into the maternal morbidity following puerperal sepsis and an analysis of the disability caused thereby are desirable and essential. It was with these points in view that I began to study the remote effects of puerperal sepsis.

The Investigation

This was started in March, 1936, and the number of patients examined was 200. Invitations to attend at the hospital for examination were sent to all the patients who had been in the wards between certain dates with verified puerperal sepsis, until 200 replies had been received, by which time 710 invitations had been sent. All the patients who were examined had been admitted with

puerperal sepsis four to six years previous to the start of the inquiry. The examination consisted of a careful survey of the patient's medical and obstetrical history before and after the puerperal illness, a general medical examination, a pelvic examination, a bacteriological examination of the upper vaginal secretion, and a radiological examination where necessary. All the patients were examined by me personally. The results are set forth below under several main sections, and are an attempt to demonstrate the late effects of puerperal sepsis *per se;* morbidity resulting from any other cause, such as trauma, having been excluded so far as possible.

Subsequent Obstetric History

Much speculation often exists in the minds of both patients and doctors as to the possible effects of puerperal sepsis on child-bearing, and this usually with particular reference to sterility and the recurrence of sepsis. The subsequent obstetric history of each patient under examination was, therefore, of special interest, and a careful study revealed several interesting features.

Perhaps the most outstanding feature was sterility. Of the 200 patients examined, seventy-seven (38.5 per cent.) had had no pregnancy since their puerperal sepsis three to six years previously. In thirty-three patients (16.5 per cent.) this may have been due to the use of contraceptive measures, but the remaining forty-four patients—that is, 22 per cent. of the series—were regarded as sterile, after due consideration of the various factors affecting sterility. In every case where sterility was present it had followed puerperal infection and was regarded as the result of this infection, no other cause being found at examination. It should be noted here that in no instance was the primary infection a severe one. Some interesting points emerged, however, from the pelvic examination of these sterile patients. In 25 per cent. of them no palpable lesion was found which could account for their sterility; in 34 per cent. chronic tubal disease provided the chief cause; while in 36 per cent. the outstanding lesion was chronic uterine infection. The percentage of sterile patients with negative pelvic findings is worthy of note, and emphasizes the need for detailed examinations, such as tests for tubal patency, in the investigation of cases of sterility. Similarly the relative predominance of chronic uterine sepsis over tubal disease as a cause of sterility is somewhat unexpected, but here, too, incomplete investigation of tubal function may provide the explanation.

Another prominent feature of the subsequent obstetric history was a marked increase in the incidence of abortion. In this series of patients the abortion to labour ratio was 1:5.7 before sepsis and 1:2.8 after sepsis. In view of the difficulty generally experienced in assessing the causes of abortion this result is interesting; and more especially as, in this series, after careful consideration, chronic uterine sepsis resulting from previous puerperal infection was found to be the only causal factor.

And, lastly, one other feature worthy of special mention emerged from this survey of the patients' obstetric histories—namely, a comparatively high incidence of puerperal sepsis during the 4–5 year period following the initial puerperal infection. The figure taken for comparison was that given in the report of the medical officer of health for Glasgow (1936), which represents the incidence of puerperal sepsis for an unselected population. The figures obtained were as follows.

Unselected cases (M.O.H. figures)	25.1 per 1,000
Present series (verified sepsis)	58.0 „ „
„ „ (known factors excluded) ..	39.0 „ „

The difference between these figures is striking, and shows an increased sepsis rate in the present series; but before the primary puerperal infection could be regarded as responsible it was necessary to exclude cases of sepsis with any other predisposing factors, such as difficult labour or albuminuria. The corrected figures obtained for the series are also given, and suggest that the incidence of puerperal sepsis was increased after the primary infection.

Health of the Patients and the Morbid Conditions Found

No little difficulty was experienced in assessing the health of the patients subsequent to their puerperal infection, since much of the ill-health complained of could not in fairness be traced to the puerperal illness. After making the necessary allowances, therefore, it was found that on the whole their health had not been affected in any great degree; only 38 per cent. had suffered in any way severely. This appeared to be somewhat surprising, especially when examination revealed the presence of chronic infective lesions of the reproductive organs in 78 per cent. of the patients. The explanation lay in the fact that in the majority of cases the symptoms produced were mild and did not affect the general health; indeed, the impression received during the investigation was that most of the patients regarded such symptoms as backache, leucorrhoea, etc., as necessary sequelae to "childbed fever."

Gynaecological Conditions Revealed

As already noted, chronic infective lesions of the reproductive organs comprised the majority of the lesions uncovered in the investigation, and these were considered to result from previous puerperal infection. The appended table, without going into detail, gives some idea of the conditions found and their relative frequency.

Table showing Incidence of Chronic Infective Lesions as Separate Entities

Lesions	No. of Lesions	Percentage of Patients with Under-noted Lesions	Percentage of Total Lesions Found
Chronic cervicitis	135	67.5	57.0
Chronic corporeal infection ..	58	29.0	24.4
Chronic pelvic cellulitis ..	14	7.0	6.0
Chronic salpingo-oophoritis	30	15.0	12.6

Total number of lesions, 237. No gross lesion found, 43.

As may be seen, chronic uterine sepsis (corporeal and cervical) was the commonest lesion, but in most cases the resulting disability was slight. On the other hand, the prominent part played by this infection in the production of sterility and abortion has already been suggested. It may be argued that chronic cervicitis is the combined result of trauma and sepsis. With this possibility in view, comparison was made with the pelvic findings in fifty parous women who had had no previous sepsis. The results demonstrated an overwhelming preponderance of cervicitis among the patients who had suffered from sepsis. Finally, comparing chronic uterine infection and chronic tubal infection, it must be pointed out that while the latter was less frequent it almost invariably produced severe disability.

Extragenital Sequelae

The various lesions uncovered were not confined to the reproductive canal and its adnexa. These lesions were noted for their diversity, and included such conditions as

persistent phlegmasia (twenty-one cases); chronic arthritis and rheumatism (eleven); recurrent tonsillitis (six); urticaria (two); chronic iritis (two); and chronic endocarditis (two). They had in common the fact that there was no history or record of their existence before the puerperal infection. Some were the easily recognizable direct result of the original illness, as, for example, persistent swelling of the legs and fixed joints resulting from septic arthritis. In the others a reasonable theory of origin could be traced in the existence, in all, of a focus of sepsis in the reproductive system.

Bacteriology

In the great majority of patients the infecting organism at the primary puerperal illness was the *Streptococcus haemolyticus*, but in no instance did bacteriological examination demonstrate this organism in the vagina at the time of the investigation.

Summary and Conclusions

An investigation into the maternal morbidity following puerperal sepsis, and the resulting disability, is made in a series of 200 cases.

In only a small percentage of cases is the subsequent health of patients recovering from puerperal sepsis severely affected; but some mild invalidism is to be expected.

Prominent gynaecological sequelae to puerperal sepsis would appear to be sterility, increased incidence of abortion, and a higher incidence of puerperal sepsis affecting future confinements.

Chronic infective lesions of the reproductive organs were commonly found as a direct result of primary puerperal infection, while many affections outside the reproductive tract appeared to bear a definite aetiological relationship to the original infection.

I wish to thank Dr. John Watson, superintendent of Robroyston Hospital, for providing every facility for the investigation, and also the nursing staff for their generous assistance. I am especially indebted to Dr. M. A. Foulis for his invaluable criticism, and I am grateful to Professor Hendry and Professor Baird for their interest and help.

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The *Handbook on the Welfare of the Blind in England and Wales* was compiled under the aegis of the advisory committee appointed by the Minister of Health. It has now been revised and brought into line with recent legislation in a third edition, to which the Minister, Dr. Walter Elliot, contributes a preface. The handbook contains detailed information relating to the services for the welfare of the blind, including a special chapter on the provisions of the Blind Persons Act, 1938. Among the various appendices will be found information on such subjects as old age pensions and national health and unemployment insurance in relation to the blind, State and other grants for the blind, and a summary of legislation. The handbook constitutes a useful manual for the guidance of the councils of counties and county boroughs who are charged with the duty of providing for the welfare of blind persons, of the voluntary associations for the blind, and other interested bodies or persons. It may be obtained, price 1s., from H.M. Stationery Office, York House, Kingsway, W.C.2, or through any bookseller.

ADULT SERUM IN A SCHOOL EPIDEMIC OF MEASLES

BY

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The use of adult serum in measles epidemics in public schools is still on its trial; there is not yet sufficient evidence to prove its practical value in this particular field or to make an authoritative statement as to the best way of employing it. For this reason any careful attempt to use this serum is worth recording, whether the results be good, bad, or indifferent; much can be learned from the mistakes and failures of others, and something may be added to the sum of recorded experience.

The first two cases of measles at Haileybury College occurred on May 4 and May 6, 1938, respectively, and, so far as could be ascertained, were independent of each other. The latter case, which occurred in the sixth form, did not lead to subsequent cases. There were in all 530 boys in the school, of whom 139 (26.2 per cent.) were presumed to be susceptible to measles in view of their negative history as regards previous attack. Of these 139 no fewer than 120 developed measles—that is, 86.3 per cent. In addition, five boys with histories of having had a previous attack (four of them in infancy, and one, a doctor's son, five years previously), and who therefore did not receive serum, developed measles of average severity. Among the 129 presumed non-immunes, twenty-three (16.5 per cent.) received no serum for one reason or another; these, together with the five who had second attacks, accordingly serve as controls. Of the remainder, 115 (82.7 per cent.) received 20 c.cm. of adult serum, while to one boy 5 c.cm. of convalescent serum was given at his private doctor's request.

The serum was administered to the first series of contacts between the fifth and the seventh day after earliest known exposure, which was reckoned from the appearance of the first symptom of the disease in the primary case. The date of exposure of the contacts to the first two cases was known with considerable accuracy; eight cases of measles occurred among these, of which one had not been inoculated. Only partial success was achieved in discovering and injecting all the contacts of these eight infecting cases, as no fewer than ten out of the next twenty-five cases of measles occurred in boys in whom no contact had been suspected, and who therefore had not been inoculated. As the epidemic was observed to spread with no readily defined limits, it was decided to inoculate the remainder of the presumed non-immunes as early as practicable, irrespective of whether contact was known or not. For this reason wide fluctuations were encountered in the intervals between the time of inoculation of serum and the onset of measles.

Results of Serum Administration

An attempt was made in this study to arrive at a direct comparison between the inoculated group and the controls, using for the purpose the data of height and duration of fever, degree of modification of attack, and incidence of complications.

TABLE I.—*Degree and Duration of Pyrexia*

	No.	Average Duration	Highest Temperature						
			105°	104°	103°	102°	101°	100°	Normal
Controls ..	28	4 days	2	11	10	3	2		
Inoculated ..	96	3 „	3	18	38	19	12	4	2

However, the average duration of pyrexia observed, which includes the prodromal period, may not be of great importance, since only a portion of the total came under observation during the prodromal period. The daily recording of temperature of all non-immunes at risk was found to be impracticable.

TABLE II.—*Comparative Incidence of Complications*

Complications	Inoculated Cases (96)	Controls (28)
Otitis	1	1
Bronchitis		1
Laryngitis	1	1
Tonsillitis		1
Encephalitis		1
Diarrhoea	2	
Total	4 (4.16%)	5 (17.9%)

Although the complications, including encephalitis, were mild and never constituted a threat to life, their greater frequency among the controls suggests that the serum was probably responsible for the more favourable results in the inoculated group.

Clinical observation and opinion cannot be readily reduced to statistical terms; nevertheless the following estimate of the severity of the disease in those attacked in both groups is given for what it is worth.

TABLE III.—*Degree of Illness*

	Inoculated (96)	Controls (28)
Severe	0	18 (64.3%)
Average	25 (26%)	6 (21.4%)
Mild	36 (37%)	4 (14.3%)
Very mild	35 (37%)	0

TABLE IV

Onset of Measles after Inoculation	Severity of Attack		
	Average	Mild	Very Mild
3–5 days	2 (the worst)	2	4
6–11 „	7	14	13
12–16 „	7	7	8
17–33 „	9	11	11

The average time of onset of measles after injection, taken from the appearance of the rash, was fourteen days. An analysis of the injected cases was made in order to determine if the severity of the attack was related to the interval elapsing between inoculation and onset, and revealed no difference (Table IV).

Discussion

The epidemic in my experience was a comparatively mild one, although some of the cases were quite sharp attacks. This may be attributed partly to the excellent weather prevailing at the time of the epidemic and partly to the avoidance of overcrowding, which was facilitated by the ready co-operation of many of the parents, who took their boys home early in the disease; for instance, sixty-four boys left the sanatorium within a week of onset. Although as many as 101 patients were under treatment at a time, the epidemic lasted as long as seven weeks. By the end of that time all but 13.7 per cent. of the presumed non-immunes had suffered attack.

The results described here are less favourable than those recorded by different workers in recent measles epidemics, but in certain material respects they are not strictly comparable. Judging from the clinical condition of the first seven cases inoculated, in which the exposure–inoculation period was known, and which subsequently developed measles, it appeared that the degree of attenuation of attack obtained was not so pronounced as that recorded by other workers (L.C.C. Measles Report, 1937; Hobson, F. G., *British Medical Journal*, 1938, **2**, 171). There seems little doubt that a dose of 20 c.cm. is too small for boys between 14 and 17 years old, and in all probability the interval of five to seven days between injection and exposure is too long; but it is questionable whether one should give such a large amount as 40 c.cm. of the serum, as is advocated in the dosage scheme of some workers. No ill effects were observed from injection of 20 c.cm., except transient stiffness for twelve to twenty-four hours.

Apart from difficulties in connexion with dosage, another reason why this prophylactic agent has not been widely adopted in public schools is the impossibility of gauging the time of infection with any accuracy. If the outbreak could be confined to a house or form the difficulties would be minimized, but every school doctor knows that there are many loopholes whereby infection may be spread despite the utmost vigilance.

Conclusion

In spite of the rather poor results on paper, I am convinced that, after making full allowance for the influence of weather and other factors, adult serum, even in the small doses used, exerted a beneficial effect, as shown by a less severe illness and a diminished incidence of complications in the majority of the inoculated cases, compared with the unprotected cases. This epidemic was more free from complications and anxieties than any of its predecessors, a view shared by the nursing staff and by all house masters of experience.

Summary

An attempt is made to assess the practical value of adult serum as a prophylactic agent in measles.

Two groups of measles patients in a public school were investigated—ninety-six inoculated, and twenty-eight uninoculated who served as controls.

The height and duration of pyrexia, degree of illness, and incidence of complications in the two groups are compared.

The findings of the investigation are discussed.

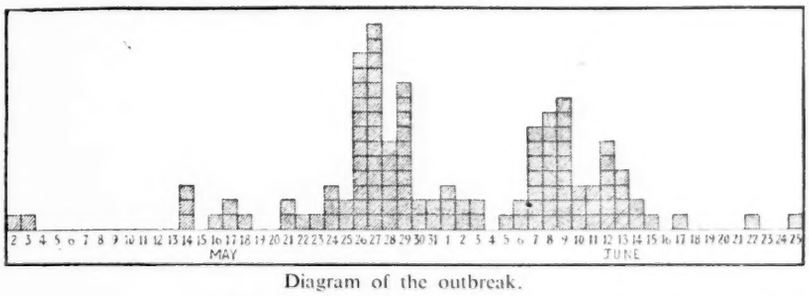

Diagram of the outbreak.

I am much indebted to Dr. J. A. H. Brincker of the London County Council for the supply of the serum, and also to Drs. Gunn and Henderson of the L.C.C. for their helpful advice and criticism.

Clinical Memoranda

"Ruptured Plantaris Tendon" treated by Novocain Injection

"Ruptured plantaris tendon" (so-called) is a painful and crippling affliction from which the patient may take several weeks to recover when treated by the usual measures of strapping, rest, etc. A method of treatment, therefore, which can relieve the pain and give full use of the limb for ordinary purposes in a matter of hours seems worth bringing to more general notice. It is based on the novocain injection technique elaborated by Leriche for the treatment of sprains and other minor injuries. Campbell[1] in this country has used this method with success for several years in the treatment of various conditions, including the one under consideration.

CASE RECORD

On February 2, 1939, I was consulted by a patient who had injured her leg while playing squash rackets some twenty hours previously. A characteristic history and the physical examination clinched the diagnosis of "ruptured plantaris tendon." The patient could not put her heel to the ground and was in considerable pain whenever she attempted weight-bearing on the injured leg or endeavoured to move about. Her job as a hospital dispenser entailed a considerable amount of standing and walking, but she was most anxious not to have to lie up as she had only recently been off work for several weeks owing to illness. Accordingly I determined to treat her by novocain injection.

The painful area in the calf was accurately localized and an injection of 20 c.cm. of a 1 per cent. solution of novocain was made into the site of maximum tenderness, both subcutaneous tissue and muscle being infiltrated. Pain and tenderness were at once greatly relieved. The patient was able to walk home and had a comfortable night. (She was not troubled by the temporary exacerbation of pain which frequently follows several hours after such an injection.) Twenty-four hours later I saw her again. She reported that she had been able to do her day's work in comparative comfort, but that she had experienced an occasional twinge of sharp pain on sudden movement. On examination it was found that there was still an area of marked tenderness in the calf, smaller in extent, however, than on the previous day. I now injected 30 c.cm. of 1 per cent. novocain until no tender area remained even on deep pressure and no pain was elicited on extreme dorsiflexion of the foot—the most painful movement formerly. On the following day the patient reported complete freedom from pain since the second injection. A sensation of tightness in the calf of the leg persisted for several days, but this did not interfere with movement and no other symptom was noted.

CONCLUSION

In the treatment of any lesion which is amenable to this type of injection therapy it is important that the tender area be infiltrated so thoroughly that no pain can be elicited either by deep pressure over this area or on subjecting the part of the body concerned to the full physiological stresses which it is designed to bear. I believe that if a rather more thorough infiltration with novocain had been made at the first injection in this case the second injection would not have been necessary.

I am indebted to Mr. W. G. Campbell, from whom I learnt this method of treatment of minor injuries while his house-surgeon at Dundee Royal Infirmary.

London. W. KENNEDY SMILEY, M.B., Ch.B.

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Reviews

OPERATIVE OTO-RHINO-LARYNGOLOGY

A Treatise on the Surgical Technique of Otorhinolaryngology. By Georges Portmann. Translation by Pierre Viole, M.D. (Pp. 675; 474 figures; 2 coloured plates. 57s.) London: Baillière, Tindall and Cox. 1939.

The book entitled *Traité de Technique Opératoire Oto-rhino-laryngologique*, by Professor Georges Portmann of Bordeaux and four collaborators—Retrouvey, Despons, Leduc, and Martinaud—published in 1932, has now been translated by Dr. Pierre Viole of Los Angeles, and appears as *A Treatise on the Surgical Technique of Otorhinolaryngology*. The intervening years have enabled the authors to revise certain portions, but the changes are of a minor character, and the present production bears a close resemblance, both in form and content, to the original French edition.

In this handsome volume Professor Portmann and his collaborators present in synoptic style, but lavishly illustrated, a detailed account of the operative technique employed in his clinic at Bordeaux. This represents not only the practice followed in that school, but it may be taken also to represent the method of teaching, in so far as the printed words are able to represent the living personality of the teacher. The descriptions of the various operations, detailed in their several steps, offer a safe guide to the intending operator, and as almost every step is illustrated he can scarcely go wrong if he follows Professor Portmann. Most of the procedures are of the classical type, with such modifications as personal experience has shown to be of value, though a few, such as the operation described for excision of the larynx, depart altogether from the custom of most operators. There is, however, a curious omission throughout the book, for although in each case the indications and contraindications are noted at the beginning, and a few words on post-operative complications are to be found at the end, in no case is there any further account of the results to be expected. This is in accord with the omission of any description of alternative methods and procedures, and what the authors have to offer must be accepted or rejected as it is without further discussion, and if accepted certainly it is of the best. There seems, however, to be a fundamental fault in teaching of this oracular character, for here is not a book to set the young surgeon thinking, but simply a set of orders for his surgical conduct. Professor Portmann is a sound guide, but his method of teaching is quite opposed to British ways, so that although it appears to satisfy his numerous followers in America it is not likely to be widely popular in Great Britain, in spite of its great merit within the limitations indicated.

HAEMATOLOGY

Principles of Hematology. By L. Russell Haden, M.A., M.D. (Pp. 348; 155 figures. 21s. net.) London: Henry Kimpton. 1939.

The dominant character of this book is the bewildering use of diagrams. It is generally acknowledged that a diagram should explain itself; unfortunately Professor Haden's diagrams do not explain themselves, and the subjoined interpretations seem to be of little help and in some cases only add to the difficulty—for example, the diagram on page 30, which purports to express "the volume color, and saturation indices of normal adults." It is possible that this confused picture is in part due to printer's

technique. The diagram on page 38 is similarly confusing. The many diagrams which accompany the "formation" and "destruction" of red cells and white cells are also difficult to follow, and will not tend to simplify the study of haematology.

The author realizes that a normal blood picture is the first essential, and that blood disturbances or diseases must be considered in relation to some established normal. Knowing that his own normals have been obtained by procedures different from those in common use in this and many other countries, especially with regard to the use of centrifuge (which in many schools is suspect and considered doubtfully reliable), also in the use of a new haemoglobinometer of which the standard error is not given (Haden Hansser), or the Wong iron method (a rather lengthy process compared with the Haldane method commonly used in this country), he advises each laboratory to establish its own normal standards.

Professor Haden seems to think that anisocytosis is a symptom of anaemia—it is of course a characteristic of every sample of blood, normal or otherwise. Generally this is a disappointing book and difficult to read. Not many students or physicians will be able to visualize the indices, and it is surely doubtful if these figures will be of much value in ordinary haematological work. The photomicrographs of the blood cells are excellent. The "toxic" granulocytes are not well defined. The bibliography is meagre. H. E. Boycott should be A. E. Boycott. The index is scanty. The case records have clinical interest, and do not fit into the haematological context.

TREATMENT OF FRACTURED SPINE

Le Traitement non sanglant des Fractures du Rachis. Fractures Récentes—Fractures Anciennes: Technique et Résultats. By Pierre Mallet-Guy. Preface by Professor R. Leriche. (Pp. 118; 54 figures. 40 fr.) Paris: Masson et Cie. 1938.

The treatment of fractures of the spine entered an entirely new phase when it was realized that accurate reduction was possible and, indeed, essential to success, while mere immobilization, however complete, was often followed by pain and permanent disability. This little volume is based on a personal experience of thirty-four cases treated at the hospital of Lyons by Dr. Mallet-Guy with the collaboration of Professor Leriche. The cases have been studied as a definite research in the most exact detail, and they form an extremely valuable contribution.

The technique of reduction is described fully, including the method of local anaesthesia employed and the formation of the plaster jacket used for support. The different anatomical forms assumed by the fractures are then analysed, and the fractures themselves are classified in definite groups, each illustrated by *x*-ray pictures and diagrams. These include eight cases in which there was some degree of pressure on the spinal cord or the nerve roots, in all but two of which recovery was, however, obtained. There follows an analysis of clinical results illustrated by small strip photographs of the patients, which give really remarkable proof of the results obtained. The final chapter discusses certain special points in treatment, and especially the treatment of old fractures in which pain has persisted.

Professor Leriche furnishes a foreword in which he describes the volume as typical of surgical utility, as going straight to the point, and as saying just what is required and avoiding all unnecessary complications. We entirely agree with Professor Leriche, and warmly congratulate the author on the production of a really valuable work in an important branch of modern surgery.

CANCER AND "TREPHONES"

Cancer et Tréphones de Carrel. By Dr. Pierre Lemay. (Pp. 133. 20 francs.) Paris: Librairie E. Le François. 1938.

Carrel observed that the growth in tissue cultures was inhibited by blood serum and stimulated by extracts of certain tissues; he attributed the stimulation to substances which he called trephones. It occurred to Lemay that Carrel's trephones might be the cause of cancer, and in 1924 he devised a theory of "hypertrephocytosis." He believes that the normal life of tissues in the body depends upon the maintenance of an equilibrium between trephones and inhibitory substances in the blood. Excess of inhibitors leads to senescence and death, and overaction of the trephones causes excessive and abnormal development of cells, which is cancer. The book contains papers, in support of the theory, previously published in medical periodicals. One chapter affirms that butchers are exempt from cancer because they absorb inhibitory substances from meat through their hands; consequently the author looks favourably on the treatment of ulcerated cancers by applications of raw meat. Other chapters are concerned with cancer in insects, spontaneous cures of cancer, post-operative metastases, radiosensitivity, carcinogenic substances, chromosomes and cancer, what Pasteur thought about cancer and what he thought about certificates of fitness for marriage. The subject of each chapter provides the author with confirmation of his theory of hypertrephocytosis. No one knows exactly what trephones are, and many believe that they do not exist; if they exist there is no evidence acceptable to unprejudiced minds that they produce cancer. This naïve and uncritical book is not a substantial contribution to the study of cancer.

ELEMENTS OF ACTINOTHERAPY AND DIATHERMY

Actinotherapy and Diathermy for the Student. By E. B. Clayton, M.B., B.Ch. (Pp. 182; 46 figures. 7s. 6d.) London: Baillière, Tindall and Cox. 1939.

During the last few years the field to be covered by the massage student has widened enormously, and owing to the extended syllabus any textbook designed for massage students must be clear, concise, and above all practical. Dr. Clayton has evidently realized this necessity, for his book on actinotherapy and diathermy fulfils all these desiderata. Added to this, it has the virtue of a pleasant appearance, both externally and internally, making it easy and profitable to read.

The first section is devoted to light, and here also are a few pages of elementary scientific definitions which will be valuable to those whose memory of first principles has grown dim. The pages which follow this section refer to the physical properties of light and radiant energy and form a sound basis for the application of actinotherapy. In the "Table of Rays from Different Sources" it is stated that the infra-red rays emitted by the water-cooled Kromayer lamp are absorbed by the water. Modern work has disproved that water filters off all the infra-red rays. Actually it permits the passage of rays of a wavelength of 10,400 A.U., and this narrow but important band has been shown to penetrate deeply and is undoubtedly an important factor in the good results obtained by the use of the Kromayer lamp in the treatment of conditions where the lymphatic glands are inflamed. The different sources of the rays used in actinotherapy are described, and useful instructions are given for the care of apparatus. Clinical applications are then discussed, and

the instructions, though given in detail, are so well presented that the reader never gets the impression of being unable to see the wood for the trees. The illustrations are all in the form of simple line diagrams and are placed in close proximity to the text referring to them—an obvious advantage.

The second part of the book deals with diathermy. In this a working knowledge of the essentials of medical electricity is presupposed, but here, as in the preceding part of the book, the scientific basis of the work is carefully stated in a readable fashion. The physiological effects of high-frequency currents are described, and the potential dangers of this form of treatment are mentioned in connexion with the clinical applications. The chapter on technique of treatment would be more helpful if it had some illustrations, such as photographs of patients with the electrodes *in situ* and diagrams of the field produced in the tissues of the patient. The book ends with a chapter on short-wave diathermy and inductothermy, which will be found useful to massage students who go on to a hospital or a large private practice.

The author has throughout kept firmly to the limitations he imposes upon the scope of his book, and as a result he has produced a volume that will be of sound practical value to the student before examination and in the earlier years of practice after qualification.

POVERTY AND POPULATION

Poverty and Population. A Factual Study of Contemporary Social Waste. By Richard M. Titmuss. (Pp. 520; 59 tables. 10s. 6d. net.) London: Macmillan and Co. 1938.

Mr. R. M. Titmuss, in a book which is commended to the reader by Lord Horder, has brought within a moderate compass a great deal of information mainly of a statistical kind. Briefly, Mr. Titmuss's thesis is this. An immense waste of life and health is going on in this (as in other) countries. This waste was always tragic, but, having regard to the declining birth rate, its relief is urgent. In order to bring the facts home to the general reader Mr. Titmuss has constructed many tables and diagrams from official publications, and has quoted extensively the opinions of official and unofficial investigators. The criticism likely to be passed on the book is that Mr. Titmuss is rather apt to attach equal importance to "authorities" of very unequal weight, and to underestimate the significance of historical backgrounds. We do well to be horrified, really horrified, by the contrast of mortality between the best and the worst districts of the country; but in justice to both our predecessors and our contemporaries we should not neglect to study the vital statistics of our country in the past, when, for instance, the extent of unemployment had not reached the astronomical figures of our own time. It is right to stress this weakness, because dialectical advantage of it can be taken by the advocates of leaving things alone. In a recent memoir published by the Ministry of Health Dr. E. Lewis-Faning concluded that it was not statistically possible to attribute to the industrial depression of 1929–33 any deterioration of *mortality* rates in the depressed areas. He added:

> "At first sight one might be inclined to regard this as a matter for congratulation, that at least the mortality of the people had not suffered by reason of the economic crisis. But tracing backwards through the years the history of mortality in these districts, one is almost inclined to wish that the excessive mortality depicted *could* be shown to be related to the events of 1929–33 as effect to cause. For, were that really the case, the lifting of the depression might be expected to cure the evil."

It is in this spirit that such a book as that of Mr. Titmuss should be read. One may demur from this or that special inference, one may say that *propter* is sometimes substituted for *post*, but nothing can affect the contrast. Poor, ill-housed, ill-fed people do die at rates immensely greater than the well-to-do, decently housed, properly fed people. That this was as true in 1909 or 1809 as in 1939—that it was even more true then—is no consolation.

Notes on Books

Aequanimitas had its origin in the valedictory address given by WILLIAM OSLER in 1889 to the graduates in medicine of the University of Pennsylvania. Other addresses were added, and *Aequanimitas* appeared as a substantial volume of charmingly written essays in 1904, a second edition was published in 1906, and a third in 1932. In spite of repeated reprintings the book has long been difficult to obtain, and we therefore welcome an English reprint of the third edition. Sir Walter Langdon-Brown, who may well be described as a man of like kidney with Osler himself, writes a biographical note, and the publishers, H. K. Lewis and Co., have added a reproduction of Elliott and Fry's photograph. The price is 7s. 6d., and we predict a good demand in the British Isles and Dominions.

Rheumatism, by Dr. H. WARREN CROWE, is issued at 12s. 6d. by John Bale Medical Publications, Ltd. The preface expressly disclaims any intention to add to the number of textbooks on rheumatic disease. It is largely devoted to the theory and practice of vaccine therapy as carried out by the author and his colleagues, and it is claimed that this should be regarded as the principal method in the treatment of *all* forms of arthritis, whether infective or not. This in spite of the fact that after the most exhaustive investigation and trial the use of vaccines in rheumatic disease has largely been abandoned by workers of experience both in this country and in the United States. It is, however, generally admitted that the psychological effect of any form of systematic treatment carefully controlled so as not to do harm is of great value, and some have justified their use of vaccines on this ground. The book also contains sections dealing briefly with some physical methods, with orthopaedics, and laboratory technique by the staff of the Charterhouse Clinic, and is well illustrated.

In *The Art of Mothercraft* Dr. L. G. HOUSDEN presents the first volume of a trilogy designed to impart knowledge on this important subject to all who need it. He would like to see the subject taught to girls in schools on a national scale, and the present volume is for schoolgirls. It deals essentially in general principles in an easily read style, the information imparted is accurate and unbiased, and the book can safely be given to even quite young schoolgirls without fear of doing more harm than good. It is published at 1s. 6d. by the National Association of Maternity and Child Welfare Centres and for the Prevention of Infant Mortality.

Il Trattamento delle Sindromi Parkinsoniani Postencefalitiche con le Radici di Atropa Belladonna, by Professor FEDELE NEGRO, is published at the price of 15 lire by Industrie Tipografico Editoriali Riuniti of Turin. It gives an account of the arrangements made in that city for the treatment of post-encephalitic Parkinsonism. A special hospital has been organized. Full doses of the belladonna alkaloids (extract of root of *Atropa belladonna*) are used for treatment, and the author claims that the results are favourable.

Reprints of papers on research work from the wards and laboratories of the London Hospital during 1938 have been bound together in paper covers, and the volume is obtainable from Messrs. H. K. Lewis and Co. at 7s. 6d.

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CLINICAL STUDIES OF VITAMIN A

Frazier and Hu[1] first suggested that vitamin A deficiency might be the cause of lesions consisting of dry pigmented papules, up to 5 cm. in diameter, found chiefly on the thighs and arms, but sometimes extending to the shoulders, abdomen, back, buttocks, and, rarely, to the face and neck. The papules arose at the site of the pilosebaceous follicles; they were conical or hemispherical, and contained a central intrafollicular plug which projected from the surface and was covered with a loosely adherent scale. Nicholls[2] described similar lesions and named the disease phrynoderma ("toad-skin"). It was associated with night-blindness, and he ascribed it to a deficiency of vitamin A, but thought that other deficiencies might be involved as some of his cases also had dysentery and neuritis. Loewenthal[3 4] found the papules in his negro subjects smooth-topped, black, and shiny and about 0.5 cm. in diameter. They were not coniform or obtuse like the acne papule, and pustulation was rare. The microscopical appearance of the papules in Frazier and Hu's and Loewenthal's cases was the same. All of these workers later reported further cases from their own countries; Sweet and K'ang[5] have reported cases from China, and Aykroyd[6 7] and co-workers from India; Wright[8] in Madras observed papular lesions in association with keratomalacia. Most of these workers observed benefit after giving cod-liver oil, "avoleum" (two cases), a good mixed diet supplemented with cod-liver oil, carotene subcutaneously (one case), halibut-liver oil (one case), milk, or eggs.

Widespread occurrence of phrynoderma in a school of poorer-class children in the Nilgiris was found by Radhakrishna Rao.[9] He gave vitamin A therapy to the worst cases and kept the mild ones as controls. The vitamin A concentrate used for treatment contained 72,000 international units of vitamin A per c.cm. or 4,000 international units per minim. One cubic centimetre was therefore equivalent to 2 drachms of an average cod-liver oil. It contained no added vitamin D, which means that it was probably made from a fish-liver oil very rich in vitamin A and poor in vitamin D, and therefore contained only small amounts of the latter. The doses prescribed varied according to the condition of the patient; one boy 9 years old was given $2\frac{1}{2}$ minims every day for 112 days, during which time the papules entirely disappeared, leaving faint scars; a girl 6 years old was given $4\frac{1}{2}$ minims for sixty-three days, by which time the eruption had completely disappeared from the face and body, though a few papules remained on the arms. Whereas it is true that all the cases treated with vitamin A showed decided improvement, the untreated controls also improved a little during the period, and the author hesitates to ascribe the improvement of the severe cases to vitamin A therapy alone, or, indeed, to ascribe phrynoderma to a deficiency of this vitamin, particularly as in none of his patients were there definite clinical signs of xerophthalmia. He suggests that the vitamin A may have caused a better absorption and utilization of the food consumed and that some substance in the food may have been the active agent in the cure of the phrynoderma. Youmans and Corlette[10] have observed in a number of white patients an eruption which they believe to be due to a deficiency of vitamin A: it was an acne-like lesion, but pustulation was uncommon, and it occurred in patients past the acne age without a history or scars of pre-existing acne. One patient was given a tablespoonful of cod-liver oil three times a day for fourteen weeks before the skin became normal. Another received a similar dose for twelve weeks and then 16,000 international units of a halibut-liver-oil concentrate daily for eight weeks before the skin was normal. Four other cases also required a high dosage of vitamin A before complete cures were effected. There was almost no evidence in these patients of keratomalacia or of night-blindness, and it was thought probable that the skin changes might precede the changes in the eye and might, in fact, be the earliest signs of vitamin A deficiency. It is interesting to note that very large doses of the vitamin have to be given before the eruption begins to disappear, whereas night-blindness can be corrected very quickly. Frazier and Li[11] have recently described a cure of a hyperkeratotic follicular eruption by means of injections of carotene in oil, the patient being kept in hospital throughout the period of treatment, fed on a diet as deficient in vitamin A and "good" protein as possible, bathed only once a week, and

[1] *Arch. intern. Med.*, 1931, **48**, 507.
[2] *Indian med. Gaz.*, 1933, **68**, 681.
[3] *Arch. Derm. Syph.*, Chicago, 1933, **28**, 700.
[4] *E. Afr. med. J.*, 1933–4, **15**, 58.
[5] *Amer. J. Dis. Child.*, 1935, **50**, 699.
[6] *Indian J. med. Res.*, 1936, **24**, 419.
[7] Ibid., 1937, **24**, 707.
[8] Lecture on keratomalacia quoted by Radhakrishna Rao.[9]
[9] *Indian med. Gaz.*, 1938, **73**, 461.
[10] *Amer. J. med. Sci.*, 1938, **195**, 644.
[11] *Chin. med. J.*, 1938, **54**, 301.

given no local skin treatment. The dark-adaptation of this patient was well below normal on admission and did not improve after twenty-eight days of treatment, though by that time the skin had improved greatly. Altogether 73 mg. carotene were given during fifty-one days in hospital. Mainzer and Joel[12] conclude that a lack of vitamin A may be a cause of nutritional anaemia, but few anaemias are due to a single deficiency. Recent experiments on animals by Steiner, Zuger, and Kramer[13] demonstrate that renal and ureteral calculi can be produced in guinea-pigs by feeding them on a diet deficient in vitamin A. Calcium carbonate was early found in the epithelium of the renal pelves and ureters and later formed the sole inorganic constituent of the stones. The guinea-pig has seldom been used for studies on vitamin A, but these experiments indicate that it may offer a valuable alternative or addition to the rat as the main experimental animal by means of which further knowledge of the functions of vitamin A may be obtained. A different line of investigation has been followed by Herfort,[14] who found that vitamin A had no effect on the excretion of free hydrochloric acid in the stomach either of normal subjects or of patients suffering from hypochlorhydria. He observed, however, that it stimulated the secretion of the pancreatic juice in thirty subjects of whom some were normal and some were suffering from various gastro-intestinal disorders. There was an increase not only in the amount of juice secreted but in its lipase and tryptic activity. That the result was not due to the oil in which the vitamin A was dissolved appeared partly from control experiments with the oil alone and partly from the fact that these results were not obtained with similar solutions of vitamin D. Herfort believes that the stimulating action of vitamin A on the secretion of pancreatic juice is the direct cause of the relief noticed in his patients—for example, cessation of diarrhoea, disappearance of undigested food residues from the faeces, and increase in appetite and weight. The vitamin A was given sometimes by mouth, sometimes by intravenous injection.

An excellent review of the relation of disease to lack of vitamin A has been written in German by Lindquist.[15] In it he has reported his own experiments to determine the most satisfactory method of measuring the contents of carotene and vitamin A in the blood serum and a method of determining the "minimum perceptible light," which he found to rise with age and to be the same for the two sexes. He concluded that when serum contained less than 70 international units per 100 c.cm. the condition was pathological. He also investigated the minimum distinguishable differences in diminishing light, and found these to bear an inverse correlation with age and vitamin A content of serum up to an upper limit of 100 international units of vitamin A per 100 c.cm. of serum. He finally determined the range of vitamin values of blood serum in normal people, and concluded that less than 70 international units per 100 c.cm. of blood serum indicated a serious shortage, that 70–100 was also low, that 100–200 was apparently sufficient for many people, and that 200–400 was the amount that might be considered really satisfactory. The second part of Lindquist's review is a very comprehensive study of his own work and of other investigators on the apparent lack of vitamin A in various pathological conditions and its correlation with the low vitamin A content found in the blood serum. Results have been examined by statistical methods to determine their significance. The whole trend of clinical work with vitamin A indicates more and more that much ill-health of a serious nature may be due to a shortage of this factor and that improvement may be brought about by making good the deficiency.

[12] *Acta med. scand.*, 1938, **96**, 533.
[13] *Arch. Pathol.*, 1939, **27**, 104.
[14] *Acta med. scand.*, 1938, **96**, 425.
[15] Ibid., 1938, *Suppl.*, **97**.

GLASSES OR NO GLASSES

Time was when glasses or spectacles were rare, and so precious that they were counted as heirlooms. Happy was the scholar who inherited such a treasure for use in his later years. Now glasses are so common that there are some who allege that these aids to vision are unnatural and even a curse, since they injure the eyes of the person who wears them; and these disgruntled persons go to the labour of putting their allegations into print. Happily there are so many who know the difference between striving and straining to see with their naked eyes and the comfort and ease of seeing through proper glasses that the tirades of the cranks carry no effective weight. Again, there are nearly as many persons who know the difference between bad or little sight with their unaided eyes and the splendour and accuracy of the sight they attain with the aid of glasses; and to them also the allegation that these aids to vision are injurious is sheer rubbish.

It would seem that the ground of the objection of those who declaim against glasses lies in a suggestion that Nature has provided man at his birth with an efficient ocular equipment, and that if eyes are rightly used and properly exercised, then such adventitious aids as glasses would be unnecessary and even redundant. The assumption that human

eyes start fair, or, to use the technical term, they are emmetropic at birth, has no evidence to support it; indeed all the evidence flatly contradicts it. Many investigations have been made to determine the focus and refraction of the eyes of infants, and all such returns show how wide is the range of difference between the actual findings and the theoretical perfection of emmetropia. Twenty years ago in a discussion at the Ophthalmological Society of the United Kingdom on "Eyesight in Connexion with Education" Bishop Harman[1] gave the results of the retinoscopy findings under an efficient mydriatic of all the infants in a good-class London elementary school: 368 children of ages from 4 to 7 years. Among these there were only eight with emmetropic eyes! Grouping together those with errors of focus less than 2 D of hypermetropia and 0.5 D of astigmatism as "average eyes" there were 235 (or 65 per cent.). With higher errors of focus or "imperfect eyes" there were 126, or 35 per cent. One in every three of the total number of children had such defects of their eyes that they would need help if continuous close eye work was to be done. Since then large-scale investigations have been made in this country through the Board of Education[2] and by a like organization in the U.S.A.,[3] with similar findings.

Eyes and their shapes differ at birth as much as other physical features. Differences of physical features may matter little: differences in eye shape are of material concern. We cannot lengthen the short eye or shorten the long eye, neither can we make the flattened astigmatic eye spherical; but we can correct these defects by putting in front of the eye a refracting medium—a glass—that will do what the refractive media of the eye may be unable to do. There is nothing "unnatural" in the use of glasses. Nature provides elaborate refracting media within the eye for focusing light upon the retina; if in individual cases the internal media are insufficient we supply the balance outside the eyes by the medium of glasses. We are therefore following the lead of Nature. Those who allege that glasses are undesirable put forward their modes for improving sight. They advocate exercises, the reading of minute print, or the practice of a variety of ocular manœuvres with instruments. But recognition of the fact that errors of focus are due to the varieties in the shape of the eyes, defects in the inherent form of the eyes, rules out exercises as an effective means of correction of such defects. The intrinsic muscles of the eyes, the ciliary muscles, have no effect upon the tough sclera. The extrinsic muscles rotate the eye as a whole, and cannot alter its shape; unless, indeed, we accept the hypothesis that in undue convergence in near work the muscles may compress the globes and so render them liable to become myopic—which is just the reverse of what is desired. Occasionally fears are expressed by patients that once they take to glasses they will always need to use them. That is possible. Once we appreciate an improvement in vision with the aid of glasses our standard of life has been improved. Thenceforward we shall be reluctant to go back on that gain: we will no more discard these glasses and the good vision they give than we will discard shoes for the protection of our feet.

Glasses—that is, proper glasses—ordered by an ophthalmic medical practitioner after the methodical examination of the patient's eyes, and made by a competent optician, can do no harm, but only good. Where they are needed they will relieve the eyes, and therefore the nervous mechanism, of the patient from strains that if unrelieved might have injurious consequences. The man or woman or child who lives a truly rural life, and neither reads nor sews, may put up with many eye defects. But the strenuous worker, the student, the scholar, the writer, the industrial worker at many a delicate task, cannot do without such help if he needs it. Indeed, even with perfect eyes he may be the better for the help of glasses, as has been demonstrated by the watchmaker, the weavers in their "drawing in," the hosiery makers in "linking," and the filament sorters and mounters in the electrical industry: and even, indeed, by the ophthalmic surgeon, who needs the help of glasses to do fine work for his patients, sometimes in difficult circumstances.

[1] *Trans. ophth. Soc. U.K.*, 1919, **39**, 79.
[2] *Report of Committee of Inquiry into Problems connected with Defective Vision in School Children* (1931). H.M. Stationery Office.
[3] *Changes in the Types of Visual Refractive Errors of Children* (1938). Public Health Service, Washington.

THE ANTIQUITY OF MAN

It was a happy thought that led to the selection of Mr. J. Reid Moir of Ipswich as Huxley Memorial Lecturer at the Imperial College of Science for the present year.[1] Some thirty years ago, while Mr. Moir was still in his "early twenties," he went playing golf with a companion who knew something of archaeology. In the course of their round his companion pulled up certain flints which, he asserted, showed human workmanship. To say that Mr. Moir was interested would be an understatement. He abandoned golf and presently gave up his means of livelihood to follow human history into a remote past by searching for the tools man had dropped on his upward evolutionary journey. He was particularly fortunate in that his quest was made in East Anglia, for nowhere are the geological periods which witnessed the evolution of man so richly preserved as in this part of England. As visitors to the coast of Norfolk and Suffolk know, the sea is eating

[1] *The Earliest Men. Huxley Memorial Lecture, 1939.* By J. Reid Moir, F.R.S. Macmillan and Co. (1s.)

into the land, spreading out on the sea floor church, field, wood, and human debris. Some day in the distant future the sea floor will become dry land. East Anglia has been made and remade many times. Very early in his career Mr. Moir turned his attention to quarries in which there was exposed one of these old sea floors—technically known as the "pre-crag detritus bed"—covered by deposits laid over it in pliocene and pleistocene times. With great daring he proclaimed that certain flints in this ancient bed showed definite evidence of human workmanship. His announcement was received with incredulity by experts—all save by the late Sir Ray Lankester, who did much to obtain a hearing for the young and enthusiastic amateur. In his Huxley Lecture Mr. Moir traces the steps by which his "wild idea" has become an accepted fact of to-day. The oldest strata to yield what he regards as man's earliest attempts at tool-making are of miocene date. "The days of our Stone Age ancestors," he says in conclusion to his lecture, "seem ever to recede further into the mists of time, and the earliest flint-flakers must have lived in a period separated from the present by perhaps two million years." Further, his evidence has convinced him that the trend of human progress has ever been upwards and that there is nothing to suggest a golden age in any phase of man's prehistory.

MIGRATION AND ENVIRONMENT

In his recent monograph[1] H. L. Shapiro gives a detailed account of an anthropometric investigation of Japanese immigrants in Hawaii. Three main groups, amounting to 2,594 persons, male and female, were studied: Japanese-born who had gone to Hawaii when adult; first-generation Japanese born in Hawaii; and, thirdly, a control group of sibling Japanese who had never left Japan and for whom the author coins the useful term "sedentes." The data on each subject comprised forty-three measurements, twenty-one indices, and forty-one observations. These were fully analysed statistically—and of the 594 pages in the book 457 are tables or graphs. The results of this comprehensive and laborious research are extremely interesting. Obviously the details are too numerous to discuss here, but the main facts are these. Although there is no evidence of any conscious selection by the recruiters of the immigrants, yet this group differs significantly from the sedentes. As the immigrants were adult when they left their country the differences are inherent in the group, and so selection has, in this instance, been a determinant of somatic differences between a stock population and a migrant sample. The author doubts whether this is a universal phenomenon wherever migration occurs. Secondly, the Hawaiian-born differ significantly from their immigrant parents, and this to a surprising degree; moreover, they differ from the sedentes even further. The modification here is of environmental origin. The chief changes in the Hawaiian-born are proportionate, though new disproportions occur. Notably the stature and limb lengths are increased, and the chest width and depth decreased. The degree and sometimes direction of the changes in the two sexes are not the same, and in general the alteration is greater in the male than in the female. Among the determinants of these alterations improvement of economic status is important, for the immigrants tend to better their lot and change their diet and occupation. These factors are discussed by the author with careful restraint, and though it must be agreed that in such an investigation scientific discipline places a strict limit on speculation, one wishes Professor Shapiro had allowed himself more latitude, and followed the fascinating lead of environmental factors still further. The populations provided unusually favourable material for the investigation, and evidently the study was carried out with great care. The results are surprising, illuminating, and important, and all these qualities are underlined by the scantiness of statistical work on migration and its effects. It is to be hoped that the author will continue this valuable research.

[1] *Migration and Environment. A Study of the Physical Characteristics of the Japanese Immigrants to Hawaii and the Effects of Environment on their Descendants.* By H. L. Shapiro. With the Field Assistance of Frederick S. Hulse. London: Oxford University Press. (32s. 6d.)

FOETAL RESPIRATION

Until recently research on asphyxia neonatorum has been largely concerned with what happens after birth in relation to the first breath and the subsequent control of respiration. Work at various centres has, however, been pushing the problem backwards, as it were, to a closer study of respiratory movements early in embryonic life. F. F. Snyder and M. Rosenfeld at the Johns Hopkins University[1] have continued their demonstration that the entrance of amniotic fluid into the alveoli of the lung is not a pathological complication but a normal consequence of foetal respiration. There is, in fact, a tidal flow of amniotic fluid between the interior of the lungs and the amniotic sac associated with respiratory movements which are probably essential for the development of a normal lung. Microscopical evidence suggests that the alveoli are filled with amniotic fluid before birth, and the question arises, Why is the newborn baby not drowned? Study of the lungs of children dying shortly after delivery provides the answer. Despite the amniotic fluid the elasticity of the alveolar walls permits such an increase in the size of the alveoli that the surface area obstructed by fluid becomes relatively much reduced. If the amniotic fluid is abnormal and contains an excessive amount of debris, injury to the lungs before birth may occur. Obstruction of the bronchioles during intra-uterine life may lead to incomplete dilatation or atelectasis. Contamination of the amniotic fluid by irritant substances—as, for example, meconium or bacteria—may cause inflammatory changes in the lungs and result in the death of the foetus with intra-uterine pneumonia. Great care must be taken, therefore, to promote drainage of fluid from the lungs during the period immediately after birth. The head-down position—maintained by tilting the infant's cot—should be

[1] *Amer. J. Obstet. Gynec.*, 1938, **36**, 363.

universally adopted and adequate aspiration from the nasopharynx carried out in all instances. The risk of "drowning" is always present in the newborn baby, even if the majority escape this fate.

CHARLES HORACE MAYO

The death of Charles Mayo removes one of the greatest figures in surgery, and breaks the most famous partnership of brothers in history. The story of the early days of this wonderful family is common property. How William Worrall Mayo, a young Manchester chemist, emigrated to the United States in 1845, and travelled slowly west in search of opportunity, learning medicine as he went, first as an apprentice in Indiana and later at the infant university of Missouri, then an outpost in hostile country: how he moved with his young family to Minnesota, where he was provost surgeon during the civil war, and was sent in 1862 with an expedition to quell the Sioux rising, bringing back the skeleton of a chief to teach his sons osteology: how he watched their education in the midst of an ever-growing practice at Rochester: how, helped by his newly graduated elder son, he cared for the victims of a cyclone that swept the town in 1883, and was then asked by the Sister of the Order of St. Francis to direct the new hospital of St. Mary erected by them in memory of this work: how in 1889 the doctor, now aged 70, took charge of the forty beds, presided over his sons, taught them what he knew of surgery, and handed over the task to them: how the skill of the lads grew and their fame as surgeons spread, so that the work swelled from 751 operations in 1895 to 8,251 in 1910 and 23,628 in 1925: how in 1894 the brothers decided to devote all their earnings, beyond a yearly sum sufficient to give them reasonable remuneration for their work, to furthering the cause of medical education and the welfare of the sick: and how from this resolve has grown that community of educational foundations, hospitals, parks, and public buildings, that centre to which the sick flock for relief and the medical profession for enlightenment, known as the Mayo Clinic. In this enterprise, which was unique in its inception and still stands unrivalled in size and scope, the two brothers William and Charles worked for fifty years in complete harmony and unity of purpose, one in their loyalty to the memory of their father and the ideals he set them, one in their devotion to duty and the public welfare. Charles was the younger by four years. He was quiet and simple in his tastes, fond of his home, devoted to his family, delighting in the farm which was attached to his house on the outskirts of Rochester. Like Hunter and Bland Sutton he had the habits of observation of the naturalist, and sought to apply what he had learned in his work. He was warm-hearted and generous, and became one of the best-loved men in surgery, so that his appearance on a platform was the signal for an ovation that was a tribute to his power of giving and inspiring friendship. He was a forceful and even brilliant speaker when occasion demanded it, but less ready than his brother to enter debate, and his talents were best shown in his genius for clinical discussion and his ready wit, which enabled him to crystallize the results of personal observation in quaint aphorisms that held the fancy and perpetuated his teaching. As an operator he was a really brilliant technician, doing work of every kind with a certainty and dexterity that might be equalled by men like Lane or Crile but has probably never been exceeded. When the surgery of the hospital was divided between the brothers, Charles inclined to operations on the head and neck, William to those on the abdomen. Charles led the way in the surgery of the thyroid gland when such work was in its infancy, and earned a reputation for cranial operations, particularly those on the Gasserian ganglion, long before neurosurgery became a separate branch, but whatever he touched he did well. He worked with few instruments, but he could make them do almost anything. His simple outlook can be traced and many of his sayings can be heard in the many theatres where his pupils work to-day. But in spite of the characteristics that distinguished them, it is hard to discuss or even to imagine the Mayos apart. It is as the Mayo brothers that they were known, that they fought their battles and scored their triumphs. At a time when ethics were shaky and commercialism rife, their unquestioned integrity contributed no less than their outstanding surgical skill to establish the reputation of their clinic as a place to which the sick could come for advice and the profession for guidance, happy in the knowledge that neither brother would recommend any course of action or publish any statement without careful thought and firm conviction.

PAGET MEMORIAL LECTURE

The thirteenth Stephen Paget Memorial Lecture, on "The Experimental Method in the Conquest of Disease," will be delivered by Sir Edward Mellanby, M.D., F.R.S., at the annual general meeting of the Research Defence Society at the London School of Hygiene and Tropical Medicine, Keppel Street, W.C., on Tuesday, June 13, at 3 p.m. The chair will be taken by the president of the Society, Lord Lamington, supported by Sir Arthur Stanley, chairman of committee, Sir Henry Dale, M.D., F.R.S., and Professor A. V. Hill, F.R.S., vice-chairman of committee. Tea and coffee will be served after the meeting, and visitors will have an opportunity of inspecting the Wellcome Museum of Medical Science in Euston Road.

The annual meeting of the Canadian Medical Association will be held in Montreal from June 19 to 23. The programme will in the main follow the arrangement of previous meetings, but a new feature is to be introduced —namely, round-table conferences each morning between 8.30 and 9.25 on some topic in medicine, surgery, obstetrics, paediatrics, and otolaryngology.

WAR WOUNDS AND AIR RAID CASUALTIES

The following is one of a series of lectures on the Treatment of War Wounds and Air Raid Casualties recently delivered at the British Postgraduate Medical School

WAR SURGERY IN SPAIN—II

TREATMENT OF SEPTIC WOUNDS

BY

A. TUDOR HART, M.R.C.S., L.R.C.P.

Late Major, Spanish Republican Army Medical Service

Prophylaxis we have already dealt with. Treatment has radically altered since the days of the war of 1914–18. The advocates of irrigation now recognize that "it is the mechanical washing far more than the action of the antiseptic that is responsible for any improvement." I am boldly going to say that I doubt if irrigation will long survive at all. The principles of treatment are still as for a fresh wound—removal of foreign matter and non-viable tissue, if not already done, followed by immobilization, elevation, and non-interference. To secure the latter, open wound treatment is ideal. For the removal of non-viable tissue in an infected wound maggots are unsurpassed, and I hope this method will be developed extensively. All this remains, however, in most cases insufficient. Free drainage of pus is essential, and the simplest and surest way to obtain this is by adequate and careful, but liberal, counter-incision, with the insertion of soft corrugated rubber drains for a few days only. Perhaps one should add the further instruction not to get worried, and to remember that the soundest criterion is this: Is the patient in pain? If he is, treatment has been inadequate and must be improved. But if he is free from pain, probably all that is needed is a little patience. And I would stress both how important is this criterion of pain, and how well pain can in most cases be rapidly eliminated by correct treatment. It should also be stressed that morphine exists to be given, not merely to be withheld. A good surgeon will in these cases give morphine freely, but will also be able to cease to give it within a few days. Where the treatment is grossly incorrect, and the pain consequently severe, no amount of morphine will control it, and yet the patient will become an addict, however sparingly the drug may be given, if he survives that long.

Sulphanilamide was given to a number of my cases, but without any quotable results, although I myself felt sure that it had been effective in certain instances. I will only venture the opinion that dosage must be very large if the drug is to be given at all. I kept two patients with septic meningitis alive on it for about a week after they should in the natural course of events have died, by using dosages up to 14 grammes in the twenty-four hours. But both died in the end, after showing the most remarkable clinical improvement. In Barcelona sulphanilamide was being tried out on a large scale, but unfortunately we shall probably never know the results owing to the capture of the city and the consequent disorganization of the Republican Medical Service.

Gas Gangrene

The anaerobic infections form a special class. It must be stressed that massive gangrene leading to a fatal termination in a matter of hours comprises only a very small percentage of the anaerobic infections that are met with in war surgery, though it remains, of course, the most important form. Prophylaxis is on the lines already indicated. The primary suture of amputations is especially liable to lead to gangrene, and I finally came to the conclusion that it should never be performed under field conditions. This conclusion is in agreement with the tendency in the great war.

The closed amputation as a cause of gangrene is only a particular instance of the danger of primary suture in general if it is not carried out with meticulous care and if the case is not kept under strict and constant observation in the immediate post-operative period. A second factor making for gangrene is ischaemia. Even a moderate degree favours the anaerobes. This is a legitimate ground for timidity in applying plaster-of-Paris immediately after operation. Nevertheless I am firmly of the opinion that it is not a sufficient ground for actually not applying plaster—at least when the case can be retained in the hospital of operation. But it is an indication for completely splitting and even opening up the plaster.

Another fact that should be stressed is the extraordinarily variable toxicity of anaerobic infection: certain localized abscesses, containing gas in appreciable quantity, may be quite without any general toxic effects. In other cases a very localized infection without any massive gangrene can lead to death in five to eight days, with a toxic jaundice and confluent bronchopneumonia. Further, it must be remembered that metastasis is very apt to occur. This is the reason why it is so dangerous not to amputate immediately a lower limb that has lost its blood supply. Other metastases occur in cases of gangrene, the organism in the new focus not necessarily being an anaerobe. For instance, the leg of a Spanish soldier aged 35 was amputated in guillotine fashion above the knee for gangrene of the leg. The open stump never showed any sign of infection, yet the man's temperature rose steadily over several days, until finally he developed jaundice and started to vomit. A subphrenic puncture on the right side drew thin stinking pus; a rib resection was performed in the expectation of finding a subphrenic abscess, but there was no sign of one. A needle was inserted into the liver and about 40 c.cm. of pus withdrawn. A rubber drain was inserted for twenty-four hours. As the vomiting continued, three litres of glucose saline were given intravenously, with some insulin. The vomiting ceased at once, and the man made an uninterrupted recovery, no further pus coming from the incision, which healed rapidly. Facilities for a culture of the metastatic organism were not available, but it was certainly not an anaerobe, as there was no gas escape on entering the abscess. The odour of the pus was that of *B. coli*.

A further fact worth mentioning, because not often found in what first-hand literature there is on gas gangrene, is that severe anaerobic infections almost invariably involve bones. In fact, if a localized anaerobic infection develops in a wound diagnosed as of soft parts only, an unsuspected bone injury will often be found. Such cases are apt to be dangerous.

Again, with regard to treatment: amputation is *not* indicated except in cases of massive gangrene. In these

cases amputation must be performed without even half an hour's delay, and with every precaution against shock, as the blood pressure will already be very low. In other cases the wound must be thoroughly opened up and all necrotic tissue removed. The wound is then left fully open. The results of treatment on these lines at the Lina Odena Hospital for Gangrene in Madrid were remarkable, with only some 15 per cent. mortality. Serum was used, especially intramuscularly, in the vicinity of the infection. Employing a French polyvalent serum, I also had the impression that this serum was definitely antitoxic and that it was more useful given locally. Finally, it may be stated that the incidence of gas gangrene is heavier in the lower limb than in the upper limb, and also, it would seem, more dangerous.

Conservative Treatment of Injuries of the Upper Limbs

I will now say a few words on conservative treatment of severe limb injuries. In the upper limb there is almost never an indication to amputate. Cases, of course, frequently arrive at the casualty clearing station with the limb already gone, but during my eight months at the front I amputated only one hand, or, rather, a few remnants of what had been a hand. It is perfectly feasible, and even easy, to save an upper limb which may be almost completely severed. If the neurovascular bundle in the arm is intact a very good result can be confidently expected. The whole shaft of the humerus may be shattered into a multitude of fragments, and yet an excellent result be obtained. That a very large bone defect is not a serious matter was illustrated by a radiograph which showed a four-inch tibial graft comfortably replacing almost the whole lower half of the shaft of the humerus. Function in this case was perfect except for some 30 degrees limitation of extension at the elbow, due to a twelve-months delay in the case coming to be grafted.

To obtain good results in severely shattered limbs all that is necessary is to apply the three general principles mentioned in the introduction on wound excision—namely, immobilization, elevation, and non-interference—after, of course, thorough and careful excision. But it is precisely for such cases that the immediate post-operative use of plaster-of-Paris is essential. As this method of treatment of fresh wounds, irrespective of bone injury, is little known in England, a case history may be worth giving by way of illustration.

Pedro, a Spaniard aged 22, arrived at the C.C.S. in February, 1937, with the left arm completely mangled, necessitating amputation above the elbow. The right forearm was also in such a state that I should in those days have amputated had it not been for the fact that the other arm was lost. Both bones were splintered, and there was so much soft tissue damage that the whole middle third of the forearm appeared pulped. The median nerve was intact but was dangling free for some three inches of its length. At operation the ulnar artery was damaged, or perhaps an already existing injury was disturbed, causing fresh haemorrhage, and the artery had to be tied off. After removal of what seemed like half the muscular tissue of the forearm the skin was sutured completely on the dorsal and incompletely on the volar aspect, leaving a considerable gap for which no skin was available. A thin layer of sterile unmedicated gauze (about four thicknesses) was then applied, and over it an unpadded plaster cast from the deltoid to the metacarpo-phalangeal joints. The whole limb was elevated on an abduction (aeroplane) splint. The post-operative course was afebrile, and when the cast was changed in fourteen days for removal of the sutures the open wound presented healthy granulations, with a rapidly advancing epithelial margin. In three weeks active movements of the fingers were beginning, and there was never, throughout the month for which the case was under my observation, any median nerve pain.

I know of no other treatment that could possibly have given this result. Not only was the primary wound excision essential but also the immediate immobilization and aseptic occlusion in the plaster cast, together with elevation to reduce oedema and prevent ischaemia. This procedure involved a certain risk of secondary amputation for gangrene; but it offered the only hope of preserving functional usefulness of the hand. It is not a procedure suitable for casualty clearing stations in a time of pressure, but it is eminently applicable to severe limb injuries received within twelve hours at base hospitals. It must be strongly emphasized that the surgeon must be familiar with non-padded plaster technique, with perfectly soft slabs invariably applied as a base and allowed to harden before the application of circular bandages. Lack of familiarity on the part of surgeons with this technique may account for some of the existing opposition to the wholesale use of plaster in war-time. On the other hand, an ignorant use of this method will lead to wholesale ischaemia and gangrene. The obvious solution lies in the systematic peace-time training of future war surgeons in modern methods of traumatology.

Both immobilization, in the case of injuries to the arm and shoulder, and elevation, in the case of arm, forearm, and hand, require an apparatus for abduction of the limb. There are two fundamentally different methods of obtaining this abduction. Each is in my opinion necessary, the indication for the one or the other depending on the type of case. The first is a thoraco-brachial plaster spica. This was the standard treatment popularized by Bastos in Madrid and later brought to Barcelona by D'Harcourt and others. Bastos's paper on war-time fractures of the humerus should be consulted (*Revista de Sanidad de Guerra*, No. 2, 1937). The essential principle is that even infected fractures of the humerus are found to do very well in a closed plaster, even without any Winnett-Orr operation before its application. However, it has to be recognized that this is not always the case, and that open treatment is sometimes essential. For such cases the abduction splint popularized by Böhler is essential. There is, however, nowadays not the slightest indication or excuse for any other form of splinting of the upper limb for injuries down to and including the elbow. These two forms are adequate for all, and superior to any other. What must be stressed is the difference between the two, as this is not always fully appreciated.

The thoraco-brachial plaster is applied with the homolateral shoulder dropped, and the arm abducted to 45 degrees only, neither more nor less. In this position reduction of displacement is excellent, and the only disadvantage is that the shoulder is almost completely immobilized in a position which may make subsequent full abduction difficult to restore. Otherwise the method gives excellent results for severe comminuted and infected fractures of the humerus, for which absolute immobility is essential.

The abduction splint, on the other hand, is applied in an entirely different manner. It is applied with and keeps the homolateral shoulder raised, and is failing in its function if it does not do this effectively and permanently for so long as it stays in use. It is essential that the shoulder should be kept raised, as otherwise the upper fragment is pulled down by the pectoral, and considerable angulation results. What is even worse, the splint becomes at the same time a drag on the limb instead of

a support for it, and non-union is quite likely to occur. In an infected case a chronic osteomyelitis will develop.

With both methods the arm must of course be brought forward to a line forming an angle of 45 degrees with the sagittal plane. This position is in the case of a plaster jacket easy to retain. In the case of the abduction splint it is much more difficult. To obtain increased stability the Barcelona surgeons were in the habit of fixing the splint to the body, not with calico bandages but with either a few plaster-of-Paris bandages or with starched crinoline bandages, which are almost as effective and are lighter. The lightness of the abduction splint, made of well-padded Cramer wire, is one of its advantages over the plaster spica. Its other advantage is in the retention of partial mobility of the shoulder-joint. Its disadvantage is that it does not give quite such good immobilization and is more difficult to apply. It is to be noticed, however, that both appliances allow the patient to be ambulant within a few days of his injury if his general condition permits; but their greatest merit is that they assist in an almost complete disappearance of that scourge of war hospitals—chronic sepsis. Very large stocks of Cramer wire should be prepared for war-time use. It is cheap, simple, adaptable, and clean, and should long ago have entirely replaced all wooden splinting, which now has no place anywhere but in a museum.

OPERATION FOR SEVERED TENDONS

Before leaving the subject of the upper limb I will mention here a little operation which has proved useful for severed tendons, and which provides, I think for the first time, a useful function for that bugbear of plastic surgery, scar tissue. It has already been mentioned that when a tendon has been severed it is useless and harmful to attempt to effect a primary tendon suture. If a successful primary union of the skin is achieved the tendon ends can subsequently be freed and sutured. If, however, the wound heals by granulation there will be a large or small fixed scar, involving both tendon ends. The operation consists in excising the superficial portion of this scar under a local anaesthetic and an Esmarch bandage. The deep portion is then freed but left in continuity with the two tendon ends. The patient is instructed to move his finger or fingers until a satisfactory result is achieved. The skin is then sutured, if necessary after a lateral counter-incision and whole-skin lateral transposition, with an epithelial inlay graft laid over the bare area, which is of course not over the original wound. The patient is instructed to give the fingers constant exercise to maintain tendon mobility. Results in a series of three cases were surprisingly good.

Conservative Treatment of Lower Limb Injuries

In the course of the Spanish War the Braun-Böhler splint for the lower limb entirely replaced all others. All forms of lower limb splint which do not rest firmly on the bed are now museum pieces, except for the sole purpose of transport of fresh casualties. All forms and modifications of Thomas and Hodgen splints are therefore out of date in the wards. Secondly, where traction has to be applied at all it should nearly always be skeletal. I say "nearly," only because cases sometimes occur in which this is impossible. In such, heavy traction simply cannot be applied. For fractures of the femur the best form of traction is through the condyles of the femur, with a Kirschner wire and stirrup. The reason is that the knee-joint does not tolerate prolonged traction, and that since these severe compound fractures often require up to two or even three months of continuous traction, damage to the knee-joint must be avoided. If traction has to be applied below the knee a pin is better than a wire. The traction must never be less than 10 kg. at first, and the foot of the bed must be elevated not less than 50 cm. Abduction is essential for a good result in all cases save those of fracture of the lower third of the shaft.

Under this standard treatment compound fractures of the femur have become relatively simple to handle. Even in the most severe cases the patient is able to lift himself for a bed-pan almost at once. Mortality from fractured femurs is now extremely low. In a continuous series of sixty-eight cases handled by me in casualty clearing stations from February to September, 1937, and retained up to the tenth day or longer, there was a total mortality of seven, including three deaths within twenty-four hours from very severe multiple injuries, one accidental death from a spinal anaesthetic, one pulmonary embolism, one death from gas gangrene of an unoperated haematoma, and one death from shock twenty-four hours after amputation for injury to the femoral artery. So that of these seven deaths at least two were due to bad surgery, leaving only five as a residual, for the present unavoidable, mortality of about 7 per cent. The most interesting fact, however, was not the low mortality but the entire absence of sepsis in all the survivors, who were evacuated to base hospitals with normal temperatures and no signs of bone infection. Unfortunately I cannot claim, as I at one time thought I could, that none of these cases developed an osteomyelitis, because I subsequently saw a troublesome osteomyelitis develop in a supracondylar fracture after one month of apparently perfect recovery under traction. However, it is clear that early immobilization in an efficient form does give astonishing freedom from bone sepsis.

On the home front it is clear that all fractured femurs should be evacuated at once on a Thomas splint to a specialized base hospital, which they should reach within twelve hours, without change of stretcher. Operative intervention and immediate skeletal traction would be applied at this specialized base hospital. With regard to the leg, it should be stressed that bone injury, however extensive and severe, is never nowadays in itself an indication for amputation.

Personally I do not like weight traction for fractures of the tibia or of the tibia and fibula. In a large proportion of cases double pinning for the first three to six weeks is perfectly feasible and satisfactory, followed by a weight-bearing plaster and sticks—no crutches. In general, it may be said that limb injuries of all kinds have become far more ambulant, and much sooner ambulant, than was the case in the war of 1914–18. With such treatment atrophy and oedema of the foot in leg injuries completely disappear. It is especially important that injuries to the metatarsals should be well plastered and the patients be got walking early.

Wounds of the knee-joint present certain special features. First, in the case of no other joint is prophylaxis so important. Excellent results are given by early excision with suture of the skin only, without drainage, followed by immediate temporary immobilization on a Braun splint, under slight traction (2 kg.) if there is a fracture of the condyles.

In a few days, when danger of septic arthritis is over, any fracture of the condyles is treated as a closed fracture. If sepsis is established lateral drainage of the joint, as advocated by Mitchiner, is the first step, but is often

insufficient, especially if there is extensive comminution of a condyle. In the latter case the most radical excision is necessary to save the limb; for this a ruthless exposure is necessary, and, in fact, has no disadvantage, since a good arthrodesis is the best result that can be hoped for. A standard treatment has not yet been achieved for these very difficult cases; but I am fairly certain that the treatment, when it does become standardized, will include immobilization in plaster-of-Paris in preference to attempted immobilization under traction, which is inefficient and, in my experience, gives inferior results.

TUBERCULIN TESTS IN CATTLE

Bovine tuberculosis is one of the most serious scourges that afflict the cattle population of this country. It is impossible to assess with accuracy the extent of the loss it causes to owners of herds through the death of affected animals and the seizure of diseased carcasses, or indirectly through falling off in condition of cattle and the diminution of milk supply, but it has been estimated that the annual loss amounts to as much as £2,000,000. The disease in dairy herds is also important in that it is responsible for much severe tuberculosis in human beings, particularly children.

The possibility that tuberculosis might be eradicated from the herds of this country has received serious attention only of recent years, but the launching of the "Milk Special Designations Order" of the Ministry of Health and the "Attested Herd Scheme" of the Ministry of Agriculture is a clear indication that the disease is now being attacked on a fairly extensive scale. The tuberculin test is the sheet-anchor of all schemes for the eradication of tuberculosis, and its value for the detection of tuberculous animals has been amply substantiated. Recent years have seen notable modifications in regard to the method of production of tuberculin, and also in respect of the modes of its application.

The Joint Tuberculosis Committee of the Medical Research Council and the Agricultural Research Council has been particularly concerned with the need for detailed research into various problems associated with the tuberculin test. Certain aspects of this work were undertaken at the Institute of Animal Pathology, University of Cambridge, by Professor J. B. Buxton and Mr. R. E. Glover, and the results of their investigations are published in the report which has now been issued.[1]

It is widely known that no biological assay is 100 per cent. efficient, and the tuberculin test is no exception to this rule. The intradermal method, widely applied in this country, is undoubtedly highly accurate, but experience has shown that when attempts are made to eradicate tuberculosis by systematic testing difficulties and discrepancies may arise. The report seeks to explain some of these anomalies. After dealing with the different methods of applying the tuberculin test, sections are devoted to the value of several types of tuberculin, sensitization and desensitization of tuberculous and non-tuberculous cattle to tuberculin, and the possibility of "doping" against the various tests. Experiments are also described in which attempts were made to sensitize normal cattle to tuberculin itself; and, finally, the significance of reactions resulting from infections with organisms closely allied to the bovine tubercle bacillus is discussed in detail.

The report provides information of both a general and a particular nature to all who are interested in the eradication of tuberculosis from the herds of this country.

[1] *Tuberculin Tests in Cattle.* Agricultural Research Council Special Report Series No. 4. H.M. Stationery Office. (1s. 6d.)

LONDON AND COUNTIES MEDICAL PROTECTION SOCIETY

The annual meeting of the London and Counties Medical Protection Society was held at Victory House, Leicester Square, London, on June 8. Sir CUTHBERT WALLACE, who presided, referred to the loss which the Society had sustained in the death of Dr. Hugh Woods, its former secretary, Mr. Sydney Spokes, a vice-president, and, more recently, Dr. Marguerite Kettle, a member of the council, who, he said, had impressed them all with her wisdom and goodness, and whose death was a severe loss to the Society as well as to medical journalism.

Sir Cuthbert Wallace said that the Society continued to be prosperous. Over 1,000 new members were elected last year, against which had to be set a loss of some 450 due to death, retirement, and removal on non-payment of subscription. The number of applications for advice and assistance was just over 1,800. He went on to refer to the extreme importance, alike from the point of view of the Society and of members' own interests, of keeping good notes of cases. A good record of a case increased the practitioner's chance of winning through and made any action by the Society on his behalf much easier. But worse than having a bad or inadequate record was to alter a record which had been made; this had happened on several occasions, and, of course, it cut the ground from under the Society's feet in defending the practitioner.

Mr. W. M. MOLLISON, treasurer of the Society, spoke of its financial position, which, he said, was very sound. During the past ten years the invested funds had increased from £32,000 to £72,000, and the total income from all sources for 1938 was £18,615. The cost per member, which in recent years has considerably exceeded the £1 subscription, was last year only just over 18s.

On the motion of Mr. G. F. STEBBING, chairman of council, seconded by Dr. C. O. HAWTHORNE, Sir Cuthbert Wallace was re-elected president. The vice-presidents, treasurer, retiring members of council, and the secretary (Dr. R. W. Durand) were all re-elected, and votes of thanks were accorded to the legal advisers (Messrs. Le Brasseur and Oakley) and the Society's staff.

A "Compensation-minded" Public

The annual report, which was adopted at the meeting, stated that there was ample evidence that the public was becoming increasingly "compensation-minded," and that membership of a protection society was a necessity for practitioners. This fact was being recognized to an increasing extent by local authorities and voluntary hospitals in that many of them made it a condition of employment that their medical and dental employees should be members of a recognized protection society and should insure themselves against professional risks. The British Medical Association in its model scheme for public medical services advocated such membership as a condition of participation in the service, and the British Dental Association in its model forms of agreement for partnerships and assistantships included a clause stipulating that the practitioners concerned should be members of such a society.

The criticism has been made that the power granted to the council of the Society to decide whether or not a particular case should be undertaken on behalf of a member is undesirable and that some clearer definition on the lines of an insurance policy might be adopted. The council considers that such a change would be detrimental both to the individual member and to the Society. At present the council is free to undertake any particular case, and many cases which an insurance company might refuse are undertaken because it is considered that they may affect the professional interest of an individual member or of a large body of members. Were the Society to be conducted on insurance company lines it would naturally have to consider settling each case as cheaply as possible. The annual report as usual contains an epitome of interesting cases which have come the way of the solicitors during the year.

Nova et Vetera

THE JOHNS HOPKINS JUBILEE

When the familiar name of "Johns Hopkins" comes to the ear of medical men some recall its incomparable clinical and laboratory resources from which science and humanity have so richly and so continuously profited. Others behold the stars of its youth which flashed with such brilliance across the medical sky. Others again conjure up before their mind's eye that picturesque old group of buildings of which it has been claimed that it has outdistanced in fame the famous city in Maryland which gave it birth and life.

A Commemorative Play

"And ye shall hallow the fiftieth year . . . it shall be a jubilee unto you." "The Flowering of an Idea" was the title given to a play written by Dr. Alan M. Chesney, Dean of the Johns Hopkins Medical School, and performed at the Eastern High School in Baltimore on May 4. As the curtain rose the distinguished audience, which included alumni and nurses from all parts of the Continent of North America, was brought face to face with corporealized ghosts which in the history of the hospital became legends before their time, and which to-day reminded those of the present generation that they were citizens of no mean city. The first scene presented that old wealthy Baltimore Quaker merchant and banker, Johns Hopkins, asking George Peabody for advice as to the disposal of his vast fortune. The scene was laid in Mr. Hopkins's country estate "Clifton," in Baltimore County, on an evening in June, 1866. In the second scene was presented a meeting of the Board of Trustees of the Hospital in 1873, the year of Mr. Hopkins's death. The purchase was reported of the site for the new buildings on land occupied at that time by the old Maryland Hospital for the Insane, and a letter from the donor was read containing these significant passages: the new hospital shall "compare favourably with any other institutions of like character in this country or Europe"; it shall admit "the indigent poor . . . without regard to sex, age, or color . . . and without charge"; it shall be staffed by "surgeons and physicians of the highest character and greatest skill"; it shall "establish a training school for nurses . . . to benefit the whole community"; it shall "ultimately form a part of the Medical school of that University for which I have made ample provision in my will." In the third scene, four years later, Dr. John Shaw Billings of the United States Army Medical Corps laid before the Trustees his final plans for the construction of the hospital, of the pavilion type with separate ward buildings. The final scene reproduced the opening exercises of the hospital in the rotunda of the administration building on May 7, 1889.

Fifty Years of Progress

When "Hopkins" opened its doors it consisted of seventeen separate buildings, with accommodation for 230 in-patients, and with a nursing staff of seven graduate head nurses and seventeen probationers. To-day the hospital has blossomed forth into a great medical centre with 1,024 beds and 590 nurses. In the past half-century 2,113 nurses have graduated from the school. The infant hospital at once entered upon its golden age, and there were giants in those days. In January, 1886, William Henry Welch, in co-operation with William T. Councilman and Franklin P. Mall, had begun a postgraduate course in bacteriology and pathology under the auspices of the University. Given in the old Pathological Laboratory (now demolished), it attracted eager young men like Walter Reed and James Carroll. Osler was appointed Physician-in-Chief in September, 1888, followed by Howard A. Kelly as Gynaecologist-in-Chief in 1889, and by William S. Halsted as Surgeon-in-Chief in 1890. Dr. Henry M. Hurd, appointed superintendent of the hospital in August, 1889, was largely responsible for the selection as director of nursing of that remarkable woman Miss Isabel A. Hampton (later Mrs. Hunter Robb); Osler was fond of describing her as an "animated Greek statue," and he teasingly accused her of choosing her probationers "altogether for their good looks so that the house-staff is in a sad state." Among the first ward nurses was Miss Caroline Hampton, who became Mrs. Halsted.

In 1889 there were but four services in the institution: medical, surgical, gynaecological, and pathological. Since those days the following units have been added: the Harriet Lane Home for Children, the Henry Phipps Psychiatric Clinic, the Marburg Building for private patients, the Brady Urological Institute, the New Pathological Laboratory, the Woman's Clinic, the Carnegie Dispensary, the Wilmer Ophthalmological Institute, the Osler and Halsted Clinics, the Thayer Memorial Wards, and the new nurses' home (Hampton House).

It was appropriate that the birthday celebration should combine historic reminiscences with an epitome of the work of to-day and a prophecy of the promise of to-morrow. At the ceremonies, held in perfect weather on the green hospital lawn on the afternoon of May 4, congratulatory addresses were presented. Interesting exhibits had been arranged of old surgical instruments, models, and photographs, and of Max Brodel's magnificent original drawings for Dr. Kelly's writings, and there were numerous demonstrations of current scientific and nursing procedures. Among the lectures Dr. Simon Flexner's account of the Nuffield Benefaction and the full-time chairs at Oxford may be mentioned. The climax of the festivities was a banquet at the Emerson Hotel attended by some thousand guests.

In looking back upon the achievements of "Hopkins" during the first fifty years of its impressive career one recalls among the discoveries made within its walls that of the Welch bacillus and of Flexner's dysentery bacillus, the demonstration that meticulous handling of the tissues is an essential principle in the conduct of surgical operations, the recognition of the value of silk as suture material, the description of the radical operation for cure of cancer of the breast, the discovery that trichinosis is accompanied by an eosinophilia, and countless other contributions which have become part and parcel of medical knowledge. But in the end one's thoughts revert almost instinctively to that radiant figure of light who has impressed himself so unforgettably upon the affection of many men in many lands and in many walks of life. In the semi-centennial year of "Hopkins" the words of Dr. Cushing's dedication to his Life of Osler have a peculiarly intimate ring: . . . "particularly to those in America, lest it be forgotten who it was who made it possible for them to work at the bedside in the wards."

WALTER BETT.

SICKNESS IN THE WEST INDIES 100 YEARS AGO

In an open letter dated March 8, 1839, addressed to Lord Howick, the Secretary for War, Sir Andrew Halliday, deputy inspector-general of Army hospitals, deals with the statistical report of sickness, mortality, and invaliding among the Forces in the West Indies drawn up by Captain Tulloch and presented to both Houses of Parliament during the last session. Halliday attributed very much of the sickness and not a little of the mortality to the indifference towards the comforts and conveniences of the soldier and to the total disregard of all means of prevention. The report stated that fevers of one kind or another were by far the most prevalent and most fatal diseases throughout the West Indies, as was shown by the fact that the fever cases were more than three-eighths of the whole number admitted to hospital and the deaths from fever amounted to very nearly one-half of the total cases. Next to fever, diseases of the stomach and liver were the most frequent, which Halliday attributed to the overcrowding of the regiments in their conveyance from one colony to another. The importance of changing regiments from one station to another was emphasized, Halliday being of the opinion that no regiment should remain in any one colony more than two years. He also urged that a regiment on arrival within the Tropics should be kept for the first year in a healthy station where the men could become seasoned.

Reports of Societies

OSTEO-ARTHRITIS

At a meeting of the Heberden Society on May 16, with Dr. C. B. HEALD, the president, in the chair, the Heberden Lecture on osteo-arthritis and its association with obesity and hypertension was read by Dr. ERNEST FLETCHER.

Dr. Fletcher discussed a series of 340 cases of chronic rheumatic disease; of this number 103 belonged to the group of general osteo-arthritis, which did not include osteo-arthritis of the spine. Pain, swelling, and tenderness were by far the most common symptoms. In infective or rheumatoid arthritis two grades could be differentiated radiologically: Grade I with osteoporosis, striation of the phalanges, and loss of joint space; and Grade II in which there were mixed opaque and translucent areas in the line of the cartilage and infiltration of the bone beneath it, with sclerosis of bone and generally a few translucent areas. There was no loss of joint space in osteo-arthritis, and if the cartilage was altered there might be dense linear thickening with osteophytic outgrowths and sometimes loose bodies. To justify a diagnosis of active osteo-arthritis pain with swelling or tenderness must be present, as well as all the radiological signs of osteo-arthritis except loose bodies. These standards were not always applicable, however, in the diagnosis of osteo-arthritis of the hip.

Obesity and Hypertension

With regard to the 103 cases of general osteo-arthritis, obesity was present in 49 per cent., high blood pressure in 43 per cent., and obesity and high blood pressure in 25 per cent. From these figures it was concluded that some of the symptoms and pathological changes seen in osteo-arthritis might be elucidated by investigation of the associated obesity and hypertension. On this basis obesity and hypertension were considered in detail. The observation that the availability of fat for oxidation differed in "simple" and in "endocrine" obesity might form a fairly simple criterion for diagnosis. The comparison of sugar-tolerance tests by the oral and intravenous routes might enable carbohydrate balance experiments to be conducted, and sodium chloride tests and water-retention tests should make possible the diagnosis of cases of water–salt obesity.

As to hypertension, further attempts should be made to compare syndromes apparently due to an excess of posterior pituitary secretion with those due to the corticotrophic hormone of the anterior pituitary. Stereoscopic radiographs of the skull should be taken to isolate cases of the Stewart-Morel syndrome. Dunn's statement that proluton and ovarian concentrate brought about improvement in cases of Cushing's syndrome should be confirmed, and his explanation that they inhibited the adrenal cortex or the androgenic zone should be examined. The work of Westphal and Sievert on the effect of injecting ultrafiltrates of blood from patients with hyperpiesis should be repeated.

Osteo-arthritis had its main incidence not in old age but rather in the later periods of adult life. It was, however, sometimes seen in the 20 to 30 age group, and was then often associated with suddenly acquired obesity. Certainly in these cases an endocrine origin was possible, and when the disease occurred later it might be associated with the change of life rather than with old age. He mentioned Pommer's belief that fatty overgrowth of the epiphysis represented an important pathological change in the disease; this might be the direct link which was being sought. A general survey of obesity and hypertension suggested that the endocrine system, especially the pituitary, the adrenals, and perhaps the pancreas and thyroid, was particularly to be incriminated in these cases. He pointed out that Langdon-Brown had been impressed with the relation of the basophil cells of the anterior pituitary to the blood pressure. These considerations made the endocrine origin of osteo-arthritis a possibility, but nevertheless it might be a phenomenon which merely followed obesity and hypertension. There were cases with normal weight and blood pressure, but many endocrine syndromes were associated with loss of weight and a low blood pressure. If more adequate proof were forthcoming there seemed to be no difficulty in accepting the proposition that the essential lesion of osteo-arthritis—fibrillation of the avascular central portion of the articular cartilage—was either a direct endocrine phenomenon or secondarily associated with endocrine disorders. In conclusion, Dr. Fletcher said that the fact that osteo-arthritis appeared to be a "pattern" reaction was probably the confusing factor, but it seemed likely from the considerations which had been put forward that an endocrine dyscrasia might be one of the "triggers" which produced the pattern.

MALNUTRITION IN INDIA

At a meeting held on May 18 under the auspices of the Committee against Malnutrition in the hall of the Royal Society of Arts, London, the nutritional state of the peoples of India was discussed. The audience included several distinguished Indian research workers and publicists.

Sir CUTHBERT SPRAWSON, who took the chair, indicated that in his experience deficiency diseases had been common in India. It was not at all unusual in Indian jails for the weight of prisoners to increase, though the calories provided were not liberal; the assumption was that outside jail they had been very ill nourished.

Dr. MARGARET BALFOUR pointed out that while the food habits of the two countries were dissimilar, their basic food requirements were, of course, the same in most respects. The Englishman had the advantage that, while he could usually fall back on bread and cheese and potatoes when the price of meat was high, the Indian could only reduce his actual amount of food when the cost of his staple food rose. Only those who had worked in India could appreciate the benefits of national health insurance, even if our own system might be open to certain criticisms. It was true that in India there was much charity; but it was quite insufficient to meet the whole problem. The outstanding need in her view was that attention should be given to the needs of the pregnant and lactating women of the country.

Sir JOHN MEGAW thought that heredity played a relatively small part in producing the poor physique of the peoples of India; the work on nutrition in India had begun some twenty-five years ago through the initiative of Lieutenant-Colonel McCay, who had in turn been followed by Sir Robert McCarrison and Dr. W. R. Aykroyd. From their researches it was becoming clear that a diet deficient in quality even more than in quantity was the chief cause of the poor physique and proneness to disease of most Indian peasants. An inquiry carried out eight years ago by the speaker himself had resulted in an analysis of returns from 571 doctors in rural areas; in sum, 40 per cent. of the people under review were well nourished, 40 per cent. were poorly nourished, and 20 per cent. very badly nourished. The diets were specially deficient in high-grade proteins, fats, and vitamins. There was evidence of a considerable incidence of rickets and night-blindness in many parts of India. The problems of child marriage and of a rapidly increasing population must be examined when one was trying to analyse the causes of malnourishment in India. He himself believed that England would be as depressed as India if girls of 14 were compelled to undertake the perils and responsibilities of child-bearing. One would not propose that India should adopt our social customs wholesale; but there was no need to rush from one

extreme to another, and we could not be wrong in trying to save the people of India from the hopeless state in which they had neither the strength to engage in a struggle for better conditions of life nor even the aspiration for a higher standard of existence. The remedy lay in education in the planning of life; the material foundations of the better life he visualized consisted in employment of scientific methods of production, adoption of an equitable system of distribution of the fruits of labour, and the regulation of reproduction. India was an invalid whose condition demanded a diagnosis by skilled scientists, followed by rational treatment; he had himself often pleaded for an investigation of the problem of health and nutrition in India by a Commission, which should include the best brains to be found in India and Britain.

Dr. D. CURJEL WILSON spoke of the work of the Indian National Nutritional Advisory Committee, which had been recently established. The subjects considered at Delhi last winter had covered a wide range; they had included methods for extension of wheat cultivation, investigations on rice, use of red palm oil as source of vitamin A, methods for collecting food production data, and constructive action for improving the supply of milk in cities. Indian women were, in her opinion, beginning to interest themselves strongly in problems of nutrition, and a discussion of the subject was included in the last annual meeting of the All-Indian Women's Conference.

Mr. N. GANGULEE, Ph.D., formerly professor of agriculture at the University of Calcutta, criticized Sir John Megaw's theory of the relationship between population trends and prevailing malnutrition in India. Though not himself a medical man, he was aware that medical men should have a knowledge of the effects of soil conditions on the nutritive values of foodstuffs. The wheel of health was one; and for its regulation all branches of science must be co-ordinated. The speaker's own investigations had led him to the conclusion that in large areas of India there were only two rice bowls to every three mouths. But was the rice in the two bowls that existed nutritious enough? The highly polished rice in common use was the main cause of beriberi, and in his opinion the State should control the rice-milling industry. As early as 1921 the Far Eastern Association of Tropical Medicine had proposed the prohibition of milled rice; but few steps in this direction had as yet been taken.

Local News

SCOTLAND

Health of Scotland

The annual report of the Department of Health for Scotland for the year 1938 shows a steady improvement in the general health standards of the Scottish people. There was a record low general death rate of 12.6 per 1,000, and record low rates for infant mortality (70 per 1,000) and for deaths from tuberculosis (69 per 100,000). The maternal mortality rate was 4.9 per 1,000, which is the second lowest on record, the lowest having been 4.8 in 1937. During the year the Department undertook a considerable amount of new work connected with civil defence, including the organization of medical and nursing personnel, emergency hospital services, and arrangements for the evacuation of school children.

HOUSING AND NUTRITION

Three Acts of Parliament affecting housing in Scotland were passed in 1938, and new subsidies for slum clearance and relief of overcrowding were introduced to aid local authorities. More attention was given to the improvement of housing conditions for the agricultural population, with the object of helping to stem the drift of the rural population from the countryside.

The report states that field work undertaken in certain representative areas for a dietary survey has been completed and that analysis of the figures is in progress. Schemes made by the Milk Marketing Boards for the provision of milk at a reduced charge to school children were being continued to September 30, 1939. The number of certified herds had increased from fifty-two in 1928 to 134 in 1938, and of tuberculin-tested herds from fifty-six in the earlier year to 1,251 in 1938.

INFECTIOUS DISEASES

Persons notified as suffering from infectious diseases numbered 10,000 more than in 1937. The increase was mainly attributable to measles, of which there were 19,500 more cases in 1938 than in the previous year. Of enteric fever there were 412 notifications with twenty-seven deaths, a fatality rate of 6.6 per cent. This included 107 cases occurring in the Hawick outbreak, of which a full account is given in an appendix to the report.

NATIONAL HEALTH INSURANCE

About 100,000 juveniles were brought into the scheme of national health insurance when the National Health Insurance (Juvenile Contributors and Young Persons) Act, 1937, came into operation. There were about 2,250,000 contributors under the national health insurance scheme in 1938, and £3,500,000 was expended in benefits. Cases of incapacity recorded during the year numbered 417,000, and days of incapacity 25,875,000; 31,000 insured persons were incapable of work throughout the entire year. A greater demand for dental benefit was recorded during 1938, and the expenditure on this amounted to £284,000. Twelve postgraduate courses for insurance practitioners, each of a fortnight's duration, were provided at the four Scottish medical schools. Over 400 applications were received from practitioners to attend these courses, and the selection, made mainly on a geographical basis from those who had qualified not later than 1932, included 251 Scottish insurance practitioners. In addition, eight Scottish doctors attended courses in London and thirty-five English doctors attended courses in Scotland.

MATERNITY AND CHILD WELFARE

With regard to the Maternity Services (Scotland) Act, 1937, an understanding was reached with the British Medical Association that after not more than two years' working of the schemes the terms would be subject to review in the light of the experience gained. Schemes submitted covered the areas of forty-seven local authorities, and of these sixteen had been adopted by the end of the year and twenty-nine schemes were in an advanced stage and were expected to receive the approval of the Department early in 1939. The birth rate of 17.7 per 1,000 of the population in 1938 was slightly above that for the previous year. The arrangements of local authorities for supervising the health of mothers and of children under 5 years were based primarily on the work of 1,163 health visitors (507 whole-time and 656 part-time), and on 272 maternity and child welfare centres provided under the scheme. There were approximately 1,430 beds allocated to maternity patients in local authority institutions, and during 1938 several new maternity homes were opened or were under construction. The report states that more could be done for children in the age group 1 to 5, for out of the estimated number of 318,000 children in this group only 20,000 (or 6 per cent.) were brought to the centres, and 134,000 (or 42 per cent.) were visited by health visitors. The inadequacy of this supervision is reflected in the high incidence of defects found at the medical inspection of children entering school for the first time. Medical examination of children attending schools in Scotland is made on three occasions during school life: on enrolment, at about age 9, and at 12 or 13 years. The report deals with the average height and weight of children at routine medical inspections in Glasgow, and states that there has been a general and

substantial improvement in the physical condition of the school population. Dental defect remained one of the most intractable of the conditions met in the school child, for of 207,616 children inspected 56.47 per cent. were found to have one to four teeth decayed, and only 29 per cent. had sound teeth.

The report is obtainable at H.M. Stationery Office, 120, George Street, Edinburgh, price 4s. net.

Lord High Commissioner and Edinburgh Hospitals

The Lord High Commissioner (Sir John Gilmour) and Lady Gilmour paid a visit to the Royal Infirmary of Edinburgh and its new maternity pavilion on May 24. In a short address Sir John Gilmour said that hospitals and nurses were rendering a great service to the country to-day, and an extra call was coming to those who were taking an active part in A.R.P. and similar services, which would provide opportunity for the nursing profession. Evacuation of the population would mean that trained nurses would be required in large numbers outside great cities. After a tour of the maternity pavilion and a surgical and medical ward, Sir John presented to the nurses the prizes won in a recent competition. At the Deaconess Hospital of the Church of Scotland on the following day Sir John and Lady Gilmour were received by Lord Wark, chairman of the hospital, who pointed out that last year was the first complete year of activity of the hospital as recently extended. The expenditure had amounted to over £9,000, but the income, owing to the generosity of supporters in the Church of Scotland, had practically reached that figure. All the necessary plans and preparations had been made for the work of the hospital in the event of war by the training of staff, the provision of safety rooms, and other measures.

ENGLAND AND WALES

Home Service Ambulances

The annual report for 1938 of the Home Service Ambulance Committee of the Joint Council of the Order of St. John and the British Red Cross Society opens with a synopsis of the development of its ambulance service during the past twenty years. Mention is made of ambulances in the Irish troubles of 1921; in the industrial troubles in England during the same year; and in the general strike of 1926. In 1924 the first car equipped with *x*-ray apparatus was brought into the service, to be used later in the serious illness of King George V. The provision of first-aid huts, first-aid boxes, and personnel on the roads, which has been of considerable benefit in minimizing the consequences of road accidents, dates from 1926. Grateful acknowledgment is made of the ever-ready co-operation of the two leading motoring organizations, the Royal Automobile Club and the Automobile Association. The number of ambulance stations in the country equipped by the committee is now 132, and there are in addition 275 ambulances affiliated to the service. During the year 1938 the ambulances carried 170,878 patients, and the total number of patients carried by the service since its inception is 2,056,797.

Cancer Campaign in Yorkshire

At the annual meeting of the Yorkshire Council of the British Empire Cancer Campaign the chairman, Sir Harold Mackintosh, was able to state that for the first time for many years the accounts showed an excess, though none too large, of income over expenditure. This was especially gratifying, as much of the income was derived from small givers through flag days and other efforts of similar nature. Although no spectacular advances in research could be recorded, either in the Yorkshire laboratories or elsewhere, a spirit of optimism was evident among research workers. The threads of earlier investigations were being gradually pieced together and the cancer problem no longer appeared insoluble, as was the case for many years. Lord Harewood, president of the council, stressed the importance of directing research towards medical and preventive rather than surgical treatment, since many people still so dreaded the knife that they postponed the disclosure of their condition until too late. Professor R. D. Passey, director of cancer research at Leeds University, and Professor H. N. Green, professor of pathology at Sheffield University, outlined developments in their respective departments. Among researches at Leeds were the study of viruses as a cause of cancer, and of heredity, both in man and in experimental animals. With regard to the latter problem the indications emerging from the first two years of a long-term investigation concerning cancer of the breast appeared to suggest that the hereditary tendency is not so marked in this country as the researches of Wassink found it to be in Holland. Researches at Sheffield included a study of the effect of certain poisonous bacterial products upon animal tumours. It was found that the cells of the extreme growing edge of the tumour showed strong resistance to the action of these substances. This, however, could be diminished by the injection of colchicine, which has the power of temporarily preventing the multiplication of body cells.

Correspondence

The Significance of Goitre

SIR,—Simple goitre is very widespread, but to-day only a small proportion of the cases seek medical advice. Since there may be every stage of thyroid enlargement from marked visibility to what may be a normal size, it follows that a considerable proportion of the community is in effect "goitrous" even from birth or before, and the special incidence of the affection in females shows that even temporary physiological calls are often sufficient to demonstrate the deficiency of functional reserve.

Goitre occurring without producing apparent constitutional disturbance is termed "simple," which expression tends to obscure its real significance as a sign of inefficient functioning not only of the thyroid itself but of the interrelated endocrine system in general, the proper and well-balanced activity of which is essential to the maintenance of good health and also constitutes our natural protection against diseases in general. There has been much discussion as to the genesis of goitre, but the fact stands out clearly that the condition can be eliminated by the continued administration of exceedingly minute quantities of iodine in any form. Whatever may be the predisposing factors involved in certain cases the condition is essentially due to a deficiency of available iodine in the endocrine field, and we must bear in mind that ductless glands other than the thyroid may require iodine in some form for their optimal functional activities.

It seems clear that under present conditions our people are not obtaining from their ordinary foodstuffs a constantly sufficient supply of iodine necessary to enable the glandular mechanism to function at its optimum capacity. It is now a well-established fact that a certain minute quantity of iodine is absolutely essential to all vertebrate animals. I am informed by the highest authorities that this particular element is not essential to land plants, and the significance of this fact is obvious when we bear in mind that most of our foodstuffs are obtained either directly or indirectly from these sources. Man has inherited a certain degree of natural resistance to infections and intoxications and also to the various metabolic disturbances which may lead to ill-health or actual disease, and our object should be to assist Nature, as far as possible,

to function at its optimum capacity for each and every individual from intra-uterine life onwards.

A consideration of the goitre problem shows that our foods, however satisfactory they may be in other respects, are certainly deficient for our present needs in their iodine content, and this observation applies also to what are spoken of as "protective" foods. To ensure that every individual shall obtain no less than the optimal supply of iodine necessary for the maintenance of health is fortunately a very simple matter, and the supplement required is so very minute that no ill effects could possibly accrue to any individual.

I believe that steps taken to eliminate goitrous conditions would eventually have far-reaching results. I believe that thyroid disorders and related diseases would tend to disappear and the era of thyroidectomies become a memory only; that man's natural resistance to infections would be normalized and, furthermore, that disease in general would be brought under control. There are probably comparatively few people among us who enjoy the maximum degree of health, both physical and mental, of which we are inherently capable, and it stands to reason that health must be undermined in a community where Nature's signal is unheeded.

We are prone to search laboriously for the cause or causes of individual constitutional diseases, and we find it difficult to conceive that whatever may be the predisposing factors there may be some fundamental basic condition the ultimate effects of which are manifested in a multiplicity of directions.—I am, etc.,

Cardiff, May 25. W. MITCHELL STEVENS.

Detection of Crepitus

SIR,—It is sometimes difficult, without the use of *x* rays, to differentiate between damage to the soft structures and a fracture of the shaft of the fibula some distance above the ankle-joint, where the bone is covered with muscle tissue, and one hesitates to put some patients to the expense of an *x*-ray examination without good reason. Where other signs of fracture may be missing, it has been my experience that fracture of the fibula can readily be diagnosed and also located by the use of the stethoscope. If the leg is firmly grasped just below the upper articulation of the fibula with the tibia and gently squeezed in a rhythmic manner, while at the same time listening over the shaft of the fibula, crepitus is plainly audible, though not discerned by the hand or by ordinary hearing. As only very gentle pressure is required it is not necessary to cause the patient any pain. The stethoscope is also of value in confirming the diagnosis of a fractured clavicle where there is little or no deformity.—I am, etc.,

T. G. RANKINE.

Menston-in-Wharfedale, May 22.

Chemotherapy of Cerebrospinal Fever

SIR,—In February and March of last year there was a severe outbreak of cerebrospinal fever in some parts of the Northern Provinces of Nigeria. The mortality is not known accurately, but thousands of deaths were reported, and during the worst part of the epidemic it was thought that the majority of cases were fatal.

A small series of cases (thirty-two) that came under our care may be of sufficient interest to record. Before the value of prontosil album and of proseptasine tablets was realized three cases were admitted, and all of the patients died. Nearly thirty cases were subsequently treated with prontosil album or with proseptasine, and out of this series—some of the patients being extremely ill—there were only three deaths, in spite of the fact that most of these patients were treated in their own huts in the native city under very unfavourable conditions.

Owing to the lack of proper laboratory facilities and to the difficulties associated with the fact that most of the patients were treated in their own homes in widely scattered parts of the city, the diagnosis in all cases was clinical, and did not rest upon laboratory findings. Lumbar puncture was only possible in a few of the cases. For these reasons I felt that there were not sufficient scientific data to warrant publishing these cases. Several friends, however, have urged me to do so because the clinical results were so striking, and so I send you what details are available.

Epidemics of cerebrospinal fever have previously been untreatable, so far as the native population is concerned, owing to the prohibitive cost of anti-meningococcal serum and meningococcal antitoxin. With the advent of sulphanilamide and allied drugs it is obvious that we now possess a valuable, and much cheaper, means of combating this dreaded disease. The outstanding advantage, moreover, of this method of treatment is that it can be carried out in the patients' homes and in places where no hospital facilities are available. This is of the utmost importance in rural and conservative African populations, the majority of whom are often quite out of reach of the ordinary general hospital.

It would be interesting to know whether M & B 693 has been used in similar outbreaks.—I am, etc.,

A. B. COOK,
Medical Officer, C.M.S. Hospital,
Zaria, N. Nigeria, April 28. Wusasa.

Vaccine Treatment of Whooping-cough

SIR,—I was greatly surprised at the statement published by one of the leading manufacturers of vaccines in this country that "there is no general agreement that whooping-cough vaccine is effective in treatment." In my opinion the vaccine treatment in the early stage of whooping-cough is one of the outstanding therapeutic achievements. I start vaccine treatment only in the catarrhal, and in the very first days of the whooping, stage. I use large doses, as recommended by the Danish State Serum Institute and employed with apparently good results by most Danish doctors. The vaccine is given in three injections—5,000, 7,500, and 10,000 million Bordet-Gengou bacilli at half-weekly intervals or, in urgent cases, every second day. I give smaller doses only to children under 2 years of age (decreasing to one-quarter of the doses mentioned). I never observed alarming reactions and had, therefore, no reason to change to smaller doses, generally recommended in this country. In families where two or more children are attacked the first case, if brought too late for vaccine treatment, served as a control; the control nearly invariably had a longer and more severe illness than the rest of the family receiving vaccine treatment as soon as the cough started.

My experience thus agrees with that of the Danish physicians, who, according to Th. Madsen, "are practically unanimous in claiming that treatment in the early stage will shorten the disease and render it much milder. . . . But as no control material of any value is available these reports cannot be statistically assessed." A large-scale investigation of the treatment—for example, under the auspices of the Therapeutic Trials Committee of the Medical Research Council—seems long overdue, and should establish the value of the treatment or otherwise. Such an investigation should in my opinion include a series treated with the large doses recommended by the Danish authors.—I am, etc.,

Harrow Weald, May 18. A. LECHNER.

Representation of Women on the G.M.C.

SIR,—The Medical Women's Federation has given considerable thought during a number of years to the question of the representation of medical women on the General Medical Council. There are now more than 6,000 women on the *Medical Register,* and it seems to the Federation extremely desirable, and indeed only equitable, that medical women should be represented on the body responsible for the administration of the Medical Acts which affect the profession as a whole. As students, women follow the same curriculum as men; as practitioners, they are subject to the same rules of professional conduct, and they may equally become involved in disciplinary cases. Further, many women come before the Council as witnesses in penal cases, and the Federation holds the view that it would be advantageous if the evidence were weighed by women doctors as well as by men.

The present constitution of the General Medical Council makes it extremely difficult for a woman to become a member. It is unlikely that universities or examining bodies would select a woman as their single representative, nor is it probable at present that the Privy Council would advise the King to nominate a woman doctor. The only way in which medical women can hope to secure representation is by election as one of the seven practitioners chosen by the whole profession in England and Wales. Two elections for such places are due to occur at the end of the present year, and therefore the Federation desires to remind the profession of the claims of women to a place on the Council.—I am, etc.,

JANET M. CAMPBELL,
London, W.1, May 22. Honorary Secretary, Medical Women's Federation.

Organization of Out-patient Departments

SIR,—I was extremely interested in the article by Mr. Walter Howarth on the organization of out-patients at a teaching hospital (*Journal,* May 13, p. 991). As he states, it has long been a reproach that at large hospitals patients are required to wait for long periods of time, and in many cases may have to wait a whole day, before receiving attention and treatment. This reproach, I consider, is justified, as such a lack of organization would seem to exist only in hospitals where such considerable numbers of people are required to wait upon the convenience and whim of the medical officer whom they are waiting to see. Although it may be true that medical men may be the last people to be considered, this should not necessarily mean that consideration should not be given to hundreds of patients, many of whom can ill afford to lose the reduction in pay their attendance at hospital often necessitates. There would seem, therefore, to be no reason why a crowd of, say, 100 patients need congregate at any special clinic, and it was to avoid this, and so give consideration to the patients, that new schemes were evolved at this hospital.

The out-patient work of this hospital is divided strictly into clinics, such as medical, surgical, ear, nose, and throat, fractures, etc. While the attendance at the different clinics varies, they are conducted by at least two medical officers, and as many as 100 to 150 patients may be seen at a session. At first the system of giving each patient a fixed appointment for attendance at the clinic was tried at one clinic only for the latter part of last year. This system proved so successful that it has been adopted throughout the whole out-patient department. All doctors sending cases to the hospital have been circularized, stating that such an appointment system is in operation, and requesting them, so far as possible, to communicate with the appointments clerk and fix appointments for any cases they may send up for consultation or opinion. All in-patients, before their discharge to the out-patient department, are similarly given an appointment for the clinic which they have been asked to attend.

The appointments are made by an appointments clerk, who keeps separate books for each clinic. These books are specially designed "appointment books" allowing for a triplicate copy. When an appointment is made the name of the patient is inserted against the time for the appointment, and a card is issued to the patient giving the doctor's name and the time and date for the next attendance. These appointment cards correspond in colour to the coloured star fixed to distinguish the various clinic cards. The day the clinic is held one of the time-table copies is handed to each of the medical officers conducting the clinic. They are able then to see at a glance when the appointments begin, the number of patients they are likely to see, and when the clinic is likely to finish.

After the medical officer has seen the patient he indicates at the end of his out-patient notes when he desires the patient to attend again, initialling the number of days if he wishes to see the patient himself, or giving the initials of the medical officer to whom he wishes the patient to be referred at the next visit. The patient then proceeds to the appointments clerk, who gives a fixed time for the next attendance. The intervals may be weekly, fortnightly, monthly, or three-monthly, and where a patient has been asked to attend at a longer interval than three months he is asked to telephone and make an appointment at the appropriate time. For its success this scheme requires the co-operation of the patients and the medical officers, as it necessitates the medical officers starting the clinic exactly at the time of their first appointment, and providing relief should they for any reason be called away. The interval between the appointments, which is fixed by each doctor, may vary, and is dependent on the type of case to be seen and the rate at which different doctors are able to work.

Many difficulties are experienced at the start of such a scheme, and two or three months must elapse before the system can work smoothly. The system is now working extremely well at this hospital, and is greatly appreciated by all the patients who attend. Such a system, moreover, removes the necessity for providing such large halls, as has been the custom in the past, and buffets from which "placebos" in the form of tea, biscuits, and chocolate may be issued to patients to relieve the monotony of their long wait. It is contended that by an appointments scheme the time any patient need spend in an out-patient department is considerably reduced, and that in spite of loud protestations to the contrary such a scheme is possible to organize, provided sufficient time and effort are taken to make it successful.

The few details given above serve as an illustration of how the system can be worked. There is no doubt that this scheme can be elaborated and further improved, and one may even dare to hope that it might with profit be adopted by every hospital in the country.—I am, etc.,

W. ARKLAY STEEL, M.D., M.R.C.P.,
Medical Superintendent.
Hillingdon County Hospital,
Middlesex, May 22.

A Long Pregnancy

SIR,—I believe the following case, which passed through my hands in a medico-legal capacity, to be unique not only in its essential qualities but in the manner in which truth was established.

Mrs. A. married at the age of 20 and soon gave birth to two normal healthy children. She had a miscarriage five years later and then entered upon a long period of sterility for no clear cause. In 1937 she was 34 and her husband 45, and the following programme was unfolded: April 14, 1937, began to menstruate. April 16, ceased to menstruate. April 17, intercourse. April 18, intercourse. April 19, intercourse. April 19, husband accidentally killed. May, period missed;

attributed to shock. June, period missed; attributed to anaemia. July, pregnancy clearly present. February 28, 1938 (315 days), she was delivered of a normal healthy full-term male child.

The arrival of the child raised a medico-legal problem. Mr. A.'s death at work made his widow entitled to compensation, and the employers did, in fact, pay the proper sum. But when they were confronted with the posthumous and post-mature child of the dead workman they felt that before paying a sum amounting to £208 in respect of this infant they should have legal protection. They made no allegations against Mrs. A.'s chastity; they simply said that they needed legal confirmation of their liabilities in an altogether unprecedented case. Accordingly the infant child of Mrs. A. sued the employers in the county court, and the case came before a learned and very experienced county court judge. Only two pieces of evidence were presented to his honour.

1. Medical evidence was given that a pregnancy of 315 days was unusual, but not impossible.

2. Mrs. A. entered the witness box, gravely bowed to the judge and counsel, swore that she was chaste, and gravely left the box. No one even began to doubt her. Indeed, the learned judge, ordinarily a man of few words, later went out of his way to compliment her as follows: "As far as is humanly possible to speak, the infant is the son of the deceased and is entitled to compensation. Mrs. A. impressed me as a witness of truth. She is a typically decent and respectable miner's wife. It is almost inconceivable that she could have associated with another man so shortly after the death of her husband."

Judgment was accordingly entered for the infant, thus giving legal recognition to a pregnancy of 315 days.

I am much obliged to Mrs. A. for kindly allowing me to place the case on record.—I am, etc.,

G. F. WALKER, M.D., M.R.C.P.Lond.

Sunderland and Darlington,
May 14.

Congenital Absence of Pectoral Muscle

SIR,—I have read with interest Mr. Malcolm B. Parhad's description in the *Journal* of April 15 (p. 775) of a case showing the above condition. Recently I have seen this congenital anomaly in two young men, both of whom are outstanding athletes. The one is a champion in putting the shot, while the other is highly successful as a pole vaulter.

The condition is said to be exceedingly rare and the number of cases described in the literature is small. In one of my cases there is, in addition to the total absence of the major pectoral muscle, an ipsilateral absence of hair as well as of sweat glands. By means of Minot's iodine starch test for sweating I was able to demonstrate that the deficiency of sweat glands was confined to an area of skin approximately corresponding with the site of absent muscle. The area of alopecia had a similar distribution.

The fact that both cases concerned athletes who excel in performances demanding full use of the chest muscles indicates that perfect compensation or even over-compensation can occur for isolated muscular defects.—I am, etc.,

E. JOKL, M.D.,
Head of Department of Physical Education.

Witwatersrand Technical College,
Johannesburg, South Africa,
May 16.

The issue for May 6 of the *Nederlandsch Tijdschrift voor Geneeskunde*, the organ of the Dutch Medical Association, is a Petrus Camper (1732–89) number, containing among others articles on Camper as anatomist, ophthalmologist, surgeon, obstetrician, artist, and veterinarian.

Medico-Legal

MENTAL PATIENTS' RECORDS IN DIVORCE

Under the Matrimonial Causes ("Herbert's") Act, 1937, divorce can be decreed for incurable insanity lasting five years or more. To prove the insanity the petitioner must obviously have access in some way to the records of the case, and this provision of the Act could not be administered unless he or she had that access. The Board of Control and the local authorities, after some discussion, adopted the practice of placing the file at the disposal of the court, and the petitioner's solicitors can see it before trial and advise themselves on the way in which the case should be presented. Recently the President of the Divorce Division, Sir F. Boyd Merriman, complained of obstruction by the authorities responsible for the Warlingham Mental Hospital—the Croydon County Borough Council. He said[1] that all other mental hospitals assisted the courts as much as they could in supplying information on the condition of patients. So far as he knew, this hospital was the only one where difficulty had been experienced in obtaining this information. He hoped that it would be conveyed to the Croydon authorities that such obstruction would not be tolerated and that the court was not at all pleased. Counsel for the Official Solicitor said that, although the Official Solicitor had had no trouble, he had heard that other parties had. Soon after the President's statement the Croydon Corporation communicated an apology and an undertaking to follow the practice of other authorities.

[1] *Times*, May 18. *Daily Telegraph*, May 18.

Universities and Colleges

UNIVERSITY OF OXFORD

At an Encaenia to be held on June 21 the honorary degree of D.Sc. will be conferred on Sir Edward Mellanby, M.D., F.R.S., Secretary of the Medical Research Council.

UNIVERSITY OF LONDON

Dr. G. W. Pickering, F.R.C.P., has been appointed to the University Chair of Medicine tenable at St. Mary's Hospital Medical School, and will take up his duties on October 1.

LONDON HOSPITAL MEDICAL COLLEGE

Two open entrance scholarships, each of the value of £100, have been awarded to R. G. White of Queen's College, Oxford; and to R. G. Ladkin of Exeter College, Oxford, and J. Waterlow of Trinity College, Cambridge (equal, scholarship divided).

UNIVERSITY OF LEEDS

The University Council has decided to confer the honorary degree of D.Sc. on Dr. Leonard Alfred Rowden, Honorary Director of the Electrotherapeutic and *X*-ray Departments of the General Infirmary at Leeds.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

A summer course of lectures at the College has been arranged as follows: June 2, Professor Dorothy J. Collier, Facial Paralysis and its Operative Treatment; June 5, 7, and 9, Professor John Beattie, Experimental Surgery—(1) Hyperthermia, (2) Arterial Hypertension, and (3) Blood Conservation Methods; June 12, Professor D. W. Gordon Murray, Heparin in Thrombosis; June 14, Professor George Armitage, Gastroscopic Observations on the Healing of Chronic Gastric Ulcer. All the lectures begin at 5 p.m.

SOCIETY OF APOTHECARIES OF LONDON

The following candidates have passed in the subjects indicated:

SURGERY.—R. M. Coplans, S. K. Krishnan, J. Lieber, S. A. Schuyler.
MEDICINE.—S. K. Das, W. D. Jenkins, E. L. Moll, J. R. Rose, E. Smith, W. E. Swanston.
FORENSIC MEDICINE.—S. K. Das, W. D. Jenkins, E. L. Moll, J. R. Rose, E. Smith, W. E Swanston.
MIDWIFERY.—E. F. Gleadow, A. N. Kalra, E. C. G. Miller.

The diploma of the Society has been granted to S. K. Das, E. L. Moll, J. R. Rose, and W. E. Swanston.

Medical Notes in Parliament

Parliament rose for Whitsuntide on May 26. The Royal Assent had been given before Parliament rose to the Military Training Act, the Reserve and Auxiliary Forces Act, Reorganization of Offices (Scotland) Act, Limitation Act, the Camps Act, Public Health (Coal Mines Refuse) (Scotland) Act, and the King Edward VII Welsh National Memorial Association Act.

The Ministry of Supply Bill was read a first time in the House of Commons on May 25.

The report of the work of the Lord Chancellor's Visitors in Lunacy from October 1, 1938, to March 31, 1939, was presented to Parliament on May 25.

Civil Defence Bill: Provisions concerning Hospitals

In committee of the House of Commons on May 23 Part VII of the Civil Defence Bill, which provides measures to deal with casualties and disease, was considered.

On Clause 41 (Powers of Minister of Health) Mr. BERNAYS moved amendments providing that in order to afford accommodation for the treatment in hospital of casualties occurring from hostile air attack the arrangements made by the Minister might allow for the removal, in the event of a hostile attack or of reason to expect such an attack, of sick persons and persons of unsound mind and mental defectives from the place in which they were being treated or maintained, and for their treatment or maintenance, as the case might be, elsewhere. Mr. Bernays said that the amendments made it clear that the Minister could arrange for removing mental patients as well as ordinary patients to other institutions. The amendments were agreed to.

Another amendment, stating that in this part of the Bill the expression "treatment" in relation to a hospital did not include treatment in a first-aid post, was agreed to.

On Clause 42 (Duties of local authorities) Mr. EDE moved an amendment to exclude from the duty laid on county councils and county borough councils the extension of existing buildings in the execution of such works as the Minister of Health might require for the purpose of rendering any premises under the control of the council suitable for a hospital for the treatment of casualties from hostile attack, or of protecting persons in hospitals under the council's control from injury from hostile attack. Mr. Ede said that the clause was the subject of negotiation with the local authorities before it was drafted, and they understood that the "works" alluded to were of a minor character. It now appeared possible that the works might include such things as the erection of wards or a block of wards or the extension of existing buildings. That would not be regarded by the local authorities as carrying out the arrangement made between their representatives and the Ministry. He hoped it would be made clear that the "works" did not include those of the magnitude which he had indicated.

Sir JOHN ANDERSON gave an assurance that the words in the clause (which excluded from the duties of the council the erection of new buildings) were intended to include a block of new wards or other structures of that kind within the existing hospital, and not merely a new hospital or other complete building.

The amendment was withdrawn and the committee stage was completed.

Evacuation Plans

During the committee stage of the Civil Defence Bill in the House of Commons on May 24 Dr. ELLIOT said evacuation from cities and industrial areas of children of school age—when they requested it—and of expectant mothers or mothers of children under 5 years would absorb available railway facilities for three or four days. This movement would be made, if possible, before the outbreak of hostilities, during which approaches to stations would be under control. It would involve some 3,000,000 persons. After its completion voluntary evacuation of other classes from vulnerable areas might become advisable. Defence regulations would be promulgated if an emergency arose, and would include powers for billeting, but voluntary accommodation had been ensured for all unaccompanied children of school age.

Medicine Stamp Duty

The second reading of the Finance Bill was moved in the House of Commons on May 25. During the discussion Mr. GRAHAM WHITE criticized the abandonment of the medicine stamp duties, which had produced an income of £750,000 a year. He admitted that these duties were unsatisfactory in some respects, and said there would be a case for reviewing them and seeing whether, out of the recommendations of the recent committee, some better way could be found of dealing with this matter and perhaps of increasing the revenue. He asked whether the Ministry of Health had been consulted, and what was the opinion of Dr. Elliot. The way was now open for the sale of drugs without disclosure of contents through slot machines, by hawkers, and in other ways undesirable in the interest of the health of the community.

Sir JOHN SIMON said he had not taken precipitate action upon the medicine stamp duties. He had mentioned the topic in his Budget speech a year ago and had carefully examined the report of the Select Committee. This committee had been convinced that the present scheme of taxation could be repealed, and they suggested something to take its place. He would prefer not to lose revenue, but the alternative scheme suggested by the committee was not practical, as he would show when the clause dealing with the duties came to be discussed. He did not think that the proper way to deal with quack medicines was by charging a small tax. It was a matter for control and regulation by the law of public health. It was not sound to say that good medicines were not going to be taxed, but that others, which were quack medicines, would be permitted to be sold provided a small tax was paid. Dr. Elliot had stated, through Mr. Bernays, in the House of Commons on May 23 that the repeal of the medicine stamp duty would not have any adverse effects on the health of the nation. That corresponded with the information given before the Select Committee by a witness. He thought the House had better not discuss that day the large and difficult question of quack medicines and their ramifications, including the question of advertisements in many newspapers.

Mr. LATHAN asked if Sir John knew there was apprehension that the repeal of these duties would mean additional income to those who purveyed these fated medicines and so-called remedies. Sir JOHN SIMON quoted the finding of the Select Committee that the existing Stamp Acts were out of date and inappropriate to modern requirements, and that all existing legislation on the subject of the medicine stamp duties should be repealed.

Sir REGINALD BLAIR, as a member of that committee, said it had merely asked for a simplification of the law and never thought that the repeal was to be complete. Sir JOHN SIMON said he would be well prepared to deal with the matter when the House came to the clause, but could not argue the case from end to end on second reading.

Later in the debate Captain CROOKSHANK, replying for the Government, announced that Sir John Simon was satisfied certain adjustments would be required in the new duty upon films to meet claims of hardship and inequality which had been brought to the notice of the Treasury. Amendments for this purpose would be tabled soon after the Whitsuntide recess to leave time for discussing the technical points. The Finance Bill was then read a second time after a division.

Mr. MARKHAM asked Dr. Elliot on May 26 whether, as the abolition of the duty on patent medicines would result in many cases in the discontinuance of published formulae, measures would be taken for the protection of the public to ensure

the continued publication of this information. Dr. ELLIOT repeated his assurance of May 23 that the question whether any further control should be imposed on the sale or advertisement of proprietary medicines was engaging his attention. He added that the publication of formulae was one of the matters to be considered in this connexion.

Military Training of Medical Students

During further consideration of the Military Training Bill in the House of Lords on May 25 Lord ADDISON moved to insert in Clause 1 words which would permit a man registered for military training to be exempted on the grounds of his industrial skill from his liability to be called up for such training.

The Earl of ONSLOW said he wished to put the case of doctors: It was inconceivable that a doctor could be employed in the Army in any other capacity than that of an officer of the R.A.M.C., though in war he might be employed to look after the civil population. If a medical student of 20 or 21 was taken away from his training for six months that would be against public interest because he was wanted as a doctor, not as a soldier. He should be in the same category as the cadet at Woolwich or Sandhurst. The medical student might do a month or two months of military training and then go back to his hospital or even to a military hospital.

Earl STANHOPE said the Government had decided as a question of principle to make as far as possible no exceptions at all. Lord Addison's amendment was rejected.

Subsequently, during the third reading discussion, the Earl of MUNSTER said consideration was being given to medical students who might be called on to do their training. The first factor which the Government had to take into account was the period in their course at which medical students should do the training. If it was postponed until they gained their certificate they would come up for training at the age of 25, after three years had elapsed. The number of medical students at one time and the training facilities available must also be taken into consideration. They must also take into account that the Royal Army Medical Corps Militia required men who would remain in the R.A.M.C. as orderlies. All these matters the Government was taking into consideration, and no further information on them could be given at this stage.

The Bill was then read a third time. On the following day, May 26, it received the Royal Assent as the Military Training Act.

Financial Difficulties of Voluntary Hospitals

On May 25 Sir GEORGE BROADBRIDGE said the serious financial condition of the voluntary hospitals of this country, particularly in London, was due principally to reduced amount of subscriptions and falling off in donations and legacies. He suggested that this position was due to lower-interest-bearing securities and increased taxation and generous public response to the Czecho-Slovak and Jewish refugee appeals. He asked Dr. Elliot to assist these hospitals and so prevent them reducing the number of wards or closing down altogether.

Dr. ELLIOT replied that he recognized the financial difficulties confronting certain of the voluntary hospitals. There had recently been consultation, in regard to London, between representatives of the London County Council, the King Edward VII Hospital Fund, and the Voluntary Hospitals Committee for London. He was keeping in touch with these discussions and had the matter under close consideration.

Panel Doctors' Surgeries

Dr. HADEN GUEST asked on May 26 whether the Minister of Health had any statement to make regarding the investigation now being made into the complaints of the conditions of panel doctors' surgeries. Mr. BERNAYS in reply said no complaints of the conditions of panel doctors' surgeries were at present before Dr. Elliot. No investigation, therefore, of the nature indicated was being made by him, nor was he aware of any need for such an investigation. Allegations of widespread complaints were unfounded.

Dr. Elliot added that his attention had been drawn to a statement that mass complaints had been made against conditions in these surgeries. He was glad Dr. Haden Guest had put down a question which enabled him to deny this categorically.

Evacuation and Risk of Epidemic Diseases

Mr. STOKES inquired whether the epidemiological aspects of the evacuation of children under the air raid precautions scheme had been given consideration. Dr. ELLIOT replied on May 25 that the attention of local authorities had been directed, in paragraph 54 of the Ministry of Health's Memorandum Ev. 4, supplemented by paragraphs 13 and 14 of the Board of Education's Circular 1469, to the importance of preventive measures against the risk of the epidemic spread of infectious diseases. Arrangements had also been made to supplement the existing public health laboratory services by the establishment of additional laboratories in localities where it was thought that they would be most needed.

Croydon Corporation Bill.—The Croydon Corporation Bill has passed the House of Lords and was read a first time in the House of Commons on May 11. Its purpose is to allow the Corporation of Croydon to pay compensation for loss, injury, or damage resulting from an outbreak of typhoid fever in the said borough, notwithstanding certain provisions of the Public Authorities Protection Act, 1893, and the Fatal Accidents Act, 1846.

Evacuation Areas in Scotland.—Mr. COLVILLE announced on May 18 that to the existing "sending" areas in Scotland under the Government's evacuation scheme he had decided to add the burgh of Clydebank and the Rosyth area of the burgh of Dunfermline. Areas which, under present conditions, would not be asked to act as receiving areas were the burghs of Ardrossan, Barrhead, Cowdenbeath, Culross, Kilwinning, Leven, Linlithgow, Milngavie, and Saltcoats, together with the landward districts of Bearsden in the county of Dumbarton, Bishopbriggs in the county of Lanark, the parish of Cathcart and the northern part of the parish of Eastwood in the county of Renfrew, and the villages of Trosk and Fallin in the county of Stirling. He also proposed, in view of their relative inaccessibility, to hold in reserve for the present the receiving areas in the counties of Caithness, Sutherland, Ross and Cromarty, and in the north-western portion of the county of Inverness.

Dust in Cotton Mills.—On May 23 Mr. PEAKE informed Mr. Tomlinson that the recommendations of the Departmental Committee on Dust in Card-rooms, dealing with the medical examination of cotton operatives, were not being carried out. The operatives objected to such examinations in the absence of some scheme for compensating men who would, as a result, be suspended as a precautionary measure from further employment in the card-rooms. In view of this it was agreed that the committee's recommendations under this head should not be pursued. Mr. Peake also told Mr. Tomlinson that the Home Secretary would be glad to see substantial improvements in the prevention of dust in cotton mills, but the question was one of what was practicable. The Home Secretary was not satisfied that more could not be done, and the Chief Inspector of Factories proposed to hold a conference on the subject at Manchester at an early date.

First-aid Posts in Islington.—On May 25 Dr. HADEN GUEST said that in the Metropolitan Borough of Islington, with a population of over 300,000 within 3,000 acres, there was a shortage of premises suitable for use as first-aid posts. He reported that the board of management of the London Fever Hospital refused to permit the borough council to equip and use a part of the hospital premises which was isolated from other buildings until the entire evacuation of the hospital had been

carried out in time of war. Dr. ELLIOT said Islington Borough Council had some difficulty in finding enough suitable premises as first-aid posts, but eight had now been located. These would be supplemented by four mobile units. The London Fever Hospital had now agreed that one of the eight posts should be located in the hospital.

Compensation for Weil's Disease.—Replying on May 25 to Sir Arnold Wilson, Mr. PEAKE said the Home Office Committee on Industrial Diseases investigated whether Weil's disease should be scheduled under Section 43 (3) of the Workmen's Compensation Act, 1925, and considered that infection by *Leptospira icterohaemorrhagiae* might properly be scheduled, subject to special and novel conditions. The Home Office had been in consultation with representatives of employers and workmen on the terms of a draft Order. Further inquiries were being made.

Nursing Services: Salary Scale Suggested.—Mr. RHYS DAVIES asked whether, in view of the urgent necessity for attracting more young women for nursing and hospital work, Dr. Elliot would take immediate steps to set up an authority on the lines of the Burnham Committee to lay down a scale of salaries for the nursing profession in accordance with the recommendations of the Interdepartmental Committee on Nursing. Dr. ELLIOT answered that he had the recommendations of the interdepartmental committee under consideration, but was not yet in a position to make any announcement on the subject. He had sent a circular to the responsible authorities, and thought that to speak of "terrible conditions" of nursing work in certain hospitals was an overstatement at the present time.

R.A.M.C.: Vaccination of Conscripts.—Any necessary alterations in the Regulations for the Army Medical Services will be made to meet the case of conscript recruits, who cannot be compelled to be vaccinated.

Respirators for Infants.—Distribution to local authorities of respirators for babies will begin in July and proceed rapidly.

Notes in Brief

The total number of registered blind persons in Great Britain on March 31 last was 80,848.

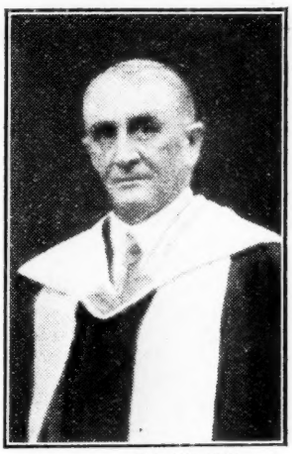
The National Fitness Council has offered £1,500,000 towards 865 schemes involving a capital expenditure of over £4,000,000 on playing fields, boys' clubs, youth hostels, gymnasia, swimming baths, and expert leadership.

The Hailsham Prize, instituted by the Grand Council of the British Empire Cancer Campaign with the object of promoting clinical investigations into the nature, causes, prevention, and treatment of cancer, will be awarded in the autumn of 1940 to the person, or group of persons, who shall submit the essay embodying the results of original investigations (carried out either wholly or in part during the year June 1, 1939, to May 31, 1940) which in the opinion of the judges is the best contribution on one of the following subjects: (*a*) the influence of sepsis on the spread of cancer of the tongue and floor of the mouth, (*b*) the treatment of carcinoma of the vulva, or (*c*) hereditary factors in cancer. The prize of £100 may be divided in the event of several dissertations of sufficient merit being submitted, or it may be reserved. Candidates are confined to those who are, who have been, or who may be responsible directly for collecting the material and filling in the case sheets of the Clinical Cancer Research Committee of the British Empire Cancer Campaign, and may be of either sex, but not at the time members of the Grand Council. Full particulars concerning the award of the Hailsham Prize may be obtained on application to the honorary secretary, British Empire Cancer Campaign, 11, Grosvenor Crescent, Hyde Park Corner, S.W.1, to whom dissertations must be delivered by July 1, 1940.

Obituary

CHARLES H. MAYO, M.D.

Dr. Charles Horace Mayo, the great American surgeon who, with his elder brother, Dr. William J. Mayo, founded and conducted the medical and surgical clinic at Rochester in the State of Minnesota, died in Chicago on May 26, aged 73. The names of William and Charles Mayo are famous throughout the world wherever surgery is practised. When the United States entered the war in 1917 they were made joint chief consultants in charge of all the surgical services in the U.S. Army.



Wide World Photos

The following appreciation comes from Professor J. R. Learmonth of Aberdeen, who was at one time on the staff of the Mayo Clinic:

Although Dr. Charles H. Mayo had been in relatively poor health for some years, the news of his passing saddens those who knew him or knew his work. His active surgical career began nearly fifty years ago, and it is characteristic of the versatility of the man that his first six contributions to medical journals dealt with such varied subjects as glandular tuberculosis, cerebral surgery, nasal sinusitis, injuries of nerves, skin grafting, and obstruction of the common bile duct. In all he wrote or shared in 413 papers of professional interest. Although in his later life he narrowed the field of his technical interest, he maintained the same broad outlook on surgery in general, and his contributions were always characterized by clarity and proper perspective. The amount of successful surgical work he accomplished could have been overtaken only by one gifted with great intellectual and physical powers, as well as single-minded devotion to his craft; in addition he had the uncanny knack of inventing procedures which were simple yet entirely efficacious, perhaps the most valuable of which was his brilliant work on transplantation of the ureters to the colon. That he was intrigued by this aspect of surgery is clear from his paper, published six years ago, on "Wrinkles and Recipes in Intestinal Surgery."

As a clinician he had a unique position. At once at ease with any patient, he had the faculty of getting immediately to the root of the matter, and of enlisting his patient's absolute confidence by his ability to put the problem clearly in lay language, and by his transparent sincerity. His patients became and remained his friends. The same grasp of fundamentals was apparent when one had the privilege of his services as consultant: he would listen carefully, his head a little to one side, occasionally nodding: and then there would come the sentence or two, selecting the important features and making clean-cut decisions: the whole driven home by a dry humour best described by the Scots word "pawky," which fixed the lesson for ever in the minds of his junior colleagues.

In spite of his eminence in the surgical hierarchy he remained simple and modest; he would give help in the same charming way to the most junior of his colleagues, over the most trivial of problems. Few men of his position can have commanded the same mixture of deep

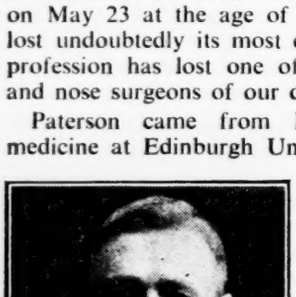
respect and genuine affection; and of all the rewards which justly came to him he can have valued none more than the lifelong regard of his brother.

D. R. PATERSON, M.D., F.R.C.P.

Consulting Surgeon for Diseases of the Ear, Nose, and Throat, Cardiff Royal Infirmary

Donald Rose Paterson died in the Cardiff Royal Infirmary on May 23 at the age of 77. By his death Cardiff has lost undoubtedly its most cultured medical man, and the profession has lost one of the most skilled ear, throat, and nose surgeons of our day.

Paterson came from Inverness, and graduated in medicine at Edinburgh University in 1883. After a distinguished student career he went to Cardiff as house-surgeon to the Cardiff Infirmary in 1884, and thereafter was in continuous association with that institution until his death. He embarked on practice as a consulting physician, and as such joined the Infirmary staff. Soon his special interest in ear, throat, and nose work manifested itself, and he was the first to be put in charge of this specialty at the Infirmary, remaining as head of the department until he reached the age limit. His abilities were in due course recognized by colleagues in his specialty. A member of the British Medical Association for fifty-six years, he was secretary of the Section of Laryngology at Nottingham in 1892, vice-president of the Section of Laryngology and Otology at Swansea in 1903 and at Edinburgh in 1927, president of the same Section at Cardiff in 1928, and vice-president of the Section of Oto-laryngology at the Centenary Meeting in London in 1932. He was also president of the Laryngological Section of the Royal Society of Medicine in 1913–14. He was elected a Fellow of the Royal College of Physicians of London in 1926.



Paterson's interest in general medicine continued for some time, and in the early days of the Welsh Medical School he did valuable experimental work in its Physiological Department with the late Professor J. B. Haycroft on the position and functions of the heart. He was an excellent linguist, and it was his constant practice to visit the foreign clinics of his specialty. He translated into English Killian's *Accessory Sinuses of the Nose*. Paterson was the first to recognize and put on record the occurrence of upper oesophageal dysphagia with intra-oesophageal evidence of inflammation as a precursor of cancer of the oesophagus, a condition which subsequently became known as the Plummer-Vinson syndrome. His special work was conducted throughout with great skill and efficiency and the immediate use of new methods of diagnosis and treatment. At the Infirmary order, punctuality, and expedition characterized his large department, and when the Medical School developed he became a most efficient teacher. His abilities brought him a large private practice from many quarters. His publications were numerous, and he was a constant contributor to specialist discussions both at home and abroad.

Paterson's services in an administrative capacity to what is now the Cardiff Royal Infirmary were continuous. As a member of its council and associated committees he showed a sane and balancing mind with excellent judgment, prudently contributing to the many advances rapidly arising in the development of a small country hospital into a large one of metropolitan type associated with a medical school. His knowledge of the history of the Infirmary was great, and he wrote many articles in the Cardiff press to further its centenary appeal. To the Medical School he rendered much service.

Brief reference must be made to Paterson's non-medical activities. He was an archaeologist of recognized repute, a Fellow of the Society of Antiquaries, and published much on the archaeology of his district. He was also an investigator of, and an authority on, local place names, and contributed to the investigation of the local fauna and flora. Altogether Paterson was a man of wide-reaching, great, but not superficial culture, a mine of information, an excellent conversationalist, and one whose personal character and attributes engendered respect and admiration in all who came into contact with him. With all this there was modesty and no desire to seek the limelight. His death occurred under most touching circumstances. He was always especially interested in nursing problems (he was a member of the General Nursing Council), and had just ceased presiding at a meeting of the Infirmary Nursing Committee, where almost his last words were, "We must be sympathetic," in relation to some problem which had arisen. Crossing the road on leaving he was stricken and carried into the Infirmary, where in a few days he died peacefully.

Paterson is survived by a widow, two sons, and a daughter. His eldest son was in the Cameron Highlanders and was killed in the war. One son is in the Royal Corps of Signals and the other in the legal profession. Profound sympathy is felt for his family by all who knew him.

Dr. Ivor J. Davies writes:

The Cardiff Royal Infirmary and the Welsh National School of Medicine have suffered an irremediable loss in the death of Dr. D. R. Paterson. His great record of service to the hospital and his pioneer work in the establishment of the School of Medicine have already been noted. Paterson was first of all a physician, and his success in the art of medicine was such that he never lost the title of doctor. He was a fine clinician, for he was a product of the great clinical period of Edinburgh combined with a keen historical interest in which he never lost the Hippocratic outlook. He was a better surgeon for having been a physician, and would certainly have attained the same eminent position in medicine as in surgery. It was his interest in medicine, together with his thoroughness and acute observation in his special work, that enabled Paterson to make an original contribution of first importance. This was published in the *Journal of Laryngology* in 1919 under the title of "A Clinical Type of Dysphagia." This syndrome of glossitis, dysphagia, and anaemia was first described by Paterson and by Brown Kelly, and priority of description fairly belongs to them. Little has since been added to their original account of the affection. His personality equalled the greatness of his professional achievement, for he was a man of outstanding character. He was truly beloved of the gods, for he was blessed with a distinguished presence, a fine intellect, a most equable temperament, and a character of transparent integrity.

Paterson, well past the allotted span, kept remarkably fit and slim, thanks to a good constitution and to regular outdoor exercise. He was passionately fond of the country, and loved to walk over the hills of South Wales, and thought little of a tramp of ten miles even when well

past middle age. On these occasions he was a most charming companion, for he knew our ancient monuments and historic homes, as he had found time for a very real appreciation of art and archaeology. His recreations included golf and fishing, and he was an original member and captain of the Royal Porthcawl Club. Almost every summer was spent in Scandinavia in search of his favourite sport of trout and grayling fishing. Paterson never seemed to grow old, and remained young both in spirit and physically. A transient hemiparesis last year was quickly forgotten, and he soon resumed almost all of his old activities. We shall sorely miss his tall spare figure walking leisurely to the hospital, and his warm welcome if one of us was fortunate enough to fall into step beside him. He has left us an imperishable memory of magnificent service and of a superb character. The burial took place at Llanwenarth, in a little country church close to Abergavenny, and at the foot of a lovely range of hills which he knew so well.

Mr. Robert D. Owen writes:

As one who had the privilege of working with Dr. Paterson for a number of years and later to succeed him in the department which he founded, I feel that his passing away has caused a deep sense of loss as well as a feeling of apprehension. His kindly help and encouragement are no longer at the service of the department which he loved so dearly. The greatness of his character, his originality as a thinker, and the mastery which he always showed as a surgeon are memories which are an inspiration to us who are left to carry on the good work which he started at the Cardiff Royal Infirmary. As a man very much his junior in years I was naturally influenced by him, and certain impressions remain vividly in my mind. I was always impressed by the soundness of his judgment and the element of moderation which he always exercised towards new ideas. Everything that he said and did can be described as solid and sound—typical of his race—and it was to the great advantage of Wales that he came here to live and to give so many years of outstanding service to the Principality not only in his own specialty but in archaeology as well.

From his modest department at the Cardiff Royal Infirmary he established international reputation more especially in his pioneer work on direct oesophagoscopy and bronchoscopy. In this work he was inspired by his old teacher, Professor Killian, whose work on *Accessory Sinuses of the Nose* he later translated into English. Dr. Paterson was the inventor of the now famous "Paterson's forceps": his pattern brought out in 1906 has hardly been improved upon. The mentioning of direct oesophagoscopy brings to my mind the frequent talks I had with him concerning the syndrome of "dysphagia with anaemia." This condition got to be known in this country as the Plumer and Vinson syndrome according to the gospel as preached by Sir Arthur Hurst in the *Guy's Hospital Reports* in 1926. Then the dysphagia was described as hysterical and the mucosal changes as due to the presence of streptococci in the pharyngeal secretions. This description of the syndrome used to amuse Dr. Paterson, as it was obvious that his valuable contribution in 1919 had not been appreciated nor really absorbed by the leaders of British medicine. Dr. Paterson in his paper entitled "A Clinical Type of Dysphagia" definitely "pigeon-holed" this syndrome as a clinical entity, and his work was corroborated by his friend, Dr. Brown Kelly of Glasgow, at the same time (1919). I regard it as a privilege to be able to draw the attention of practitioners and undergraduates to this syndrome as the work of these two observers and to call it "the Paterson-Brown Kelly syndrome." This is how it ought to have been called since 1919. Dr. Paterson confirmed this when he gave his last paper on "Upper Dysphagia" at the Central London Ear and Throat Hospital two years ago, but his modesty allowed eighteen years to pass before he claimed to himself what was an original and valuable contribution.

ALAN CARLING, B.M., B.Ch.Oxon., D.P.H.Lond., who died on May 10, was nurtured in and dedicated to public health but destined to give only four years to its service. He was born at the Peppard Sanatorium, which was started by his mother (Esther Carling, M.D.) in 1899 and was administered jointly by her and his father. His schooldays at Lynam's (Oxford) and Repton, followed by "Univ" (Oxford) and St. Thomas's, provided an aura of friendships that went on through life. After qualifying he married the nurse who had helped him through the anxieties of student midwifery, and they both worked on through the year given to the D.P.H. course. Then followed ten months' service as acting tuberculosis officer for Reading, during the illness of the permanent officer. Subsequently came two years as an assistant M.O.H. at Southampton and a further step to the service of the Hants C.C. Over both of these last two posts fell the increasing shadow of the strange fate that ended his life—the slow development of Hodgkin's disease. Against it he struggled with great persistence, helped by wise counsellors and every method known to science; the enemy, however, prevailed as it always does. Towards the end he was cheered by the helping hand of the Royal Medical Benevolent Fund. It made him feel that he was still in the company of his profession, and the promptness and delicate touch of the proffered aid were greatly appreciated. He leaves a small daughter, and despite what seemed like the tragedy of a life cut short he would readily have acknowledged that he was "laetus sorte mea" all the way.

The death occurred on March 28 of Dr. WILLIAM MABSON GABRIEL. He was born in 1860, the son of the Rev. Edward Gabriel of Kendal. His medical education was at Edinburgh, where he graduated L.R.C.P. and L.R.C.S. in 1887. As a medical student he was a prominent athlete, and assisted in forming the Edinburgh Harriers in 1885, of which he was the first captain and afterwards president. He held the four-mile amateur record for Scotland in 1886. For about twenty-five years Dr. Gabriel was in general practice at Keighley, Yorkshire, and for more than twenty-one years was medical officer of the infirmary. In 1914 he received the Territorial Decoration for twenty-one years' service, but owing to an attack of pneumonia he was prevented from going over-seas. During the greater part of the war he was D.A.D.M.S. in the Lincolnshire region with the rank of lieutenant-colonel (brevet colonel). After the war he served on pension boards in London, and then, following his old love of the sea, he served for several years as ship surgeon with the P. & O. line, finally retiring about five years ago to Oulton Broad. He maintained his remarkable fitness and ability to enjoy out-of-door pursuits until a few weeks before his death.

Dr. SIDNEY HAROLD GRIFFITHS of Brighton, who died in the Middlesex Hospital on May 6, had been for some years a medical officer in the Public Health Department of the L.C.C. He was born in Birmingham on December 26, 1881, and studied medicine at the Middlesex Hospital (where he won a prize in biology), at University College, London, and at Newcastle. He qualified as M.R.C.S., L.R.C.P. in 1909, took the D.P.H. in 1914, and the M.D. of Durham in 1927. Dr. Griffiths had held the posts of resident medical officer and registrar at the Hospital for Epilepsy and Paralysis, Maida Vale, second assistant medical officer of Wandsworth Infirmary, and for three years was assistant medical officer at the Grove Fever Hospital, Tooting.

The Services

I.M.S. DINNER

The annual dinner of the Indian Medical Service will be held at the Trocadero Restaurant, London, on Wednesday, June 14, at 7.15 for 7.30 p.m., when Major-General C. W. F. Melville, C.B., will preside. Tickets may be obtained from Mr. A. W. Brown, c/o Grindlay and Co., 54, Parliament Street, S.W.1, or from the hon. secretary, Major Sir Thomas Carey Evans, Hammersmith Hospital, Ducane Road, W.12.

Medical News

Dr. F. T. H. Wood, O.B.E., medical officer of health for the County Borough of Bootle, has been elected President of the Society of Medical Officers of Health for the session 1939–40. Dr. Wood has been a prominent member of the Society's council for many years past, and for the last four years has been one of the Public Health Service Representatives on the Council of the British Medical Association.

The bicentenary festival dinner of Queen Charlotte's Maternity Hospital will be held at the Savoy Hotel on Wednesday, June 7, at 8.15 for 8.30 p.m., when the Duke of Kent will preside.

On the occasion of the annual prize distribution by Lady Stamp at Charing Cross Hospital Medical School on Thursday, June 8, at 4 p.m., Lord Stamp will give an address.

The first annual general meeting of the Faculty of Radiologists will take place in Liverpool on June 9 and 10 under the presidency of Dr. R. E. Roberts. The scientific sessions will be held at the Liverpool Medical Institution, Mount Pleasant.

A cardiological meeting will be held at Royat (Puy-de-Dôme) on June 18, when the subject for discussion will be angina pectoris, introduced by Drs. M. Mouquin and Pierre Laubry.

Professor R. Ruggles Gates, F.R.S., will deliver a Chadwick Public Lecture on "Plant Genetics and Human Welfare" at the Chelsea Physic Garden, Swan Walk, S.W., on Thursday, June 15, at 5.30 p.m., with Sir William J. Collins, chairman of the Chadwick Trustees, in the chair. Admission is free.

An international congress for school swimming will be held at the Water Exhibition at Liége, under the presidency of Dr. Ledent, on Sunday, June 11, when discussions will be held on: (1) The relation between apnoea tests and spirometry. (2) Practical remarks on apnoea exercises in swimming. (3) The hygiene of swimming baths. Further information may be had from M. L. Wellens, 15, Rue de la Justice, Liége. A salon for medical artists at Liége will remain open during the exhibition under the presidency of Dr. Philippart, 97, Rue des Champs, Liége, from whom further information can be obtained.

In our advertisement columns this week the University of Sydney invites applications for the University Postgraduate Lectureship in Pathology and Directorship of the Pathological Unit at Prince Henry Hospital, Sydney. The salary attached to the post is £1,500 per annum (Australian currency).

With the April issue the *Monatsschrift für Geburtshilfe und Gynäkologie* appears with the alternative title of *International Monthly Review of Obstetrics and Gynaecology* and the equivalent titles in French and Italian, indicating that it will henceforward accept papers written in English, French, and Italian as well as in German.

The April issue of the *British Journal of Surgery* is dedicated to Harvey Cushing on the occasion of his seventieth birthday.

The Mexican National Academy of Medicine, founded on April 30, 1864, has recently celebrated its seventy-fifth anniversary.

By Royal decree the Medical Faculty of Athens University has been reorganized and will henceforth comprise twenty-five chairs of the various medical faculties.

The following members of the staff of the Rockefeller Institute for Medical Research will retire this year, having reached the age of 65: Dr. Alexis Carrel, Dr. Karl Landsteiner, Dr. Florence Rena Sabin, Dr. Phoebus A. Levine, and Dr. Winthrop J. V. Osterhout.

M. Léon Binet, professor of physiology in the Paris Faculty of Medicine, has been elected a member of the Académie de Médecine in the section of biological sciences, in succession to the late Dr. Antoine Béclère.

Dr. Bezançon, professor of tuberculosis, and Dr. Marion, professor of urology, have retired from their chairs in the Paris Faculty of Medicine on reaching the age limit of 70.

EPIDEMIOLOGICAL NOTES

Infectious Diseases for the Week

With the single exception of pneumonia (influenzal and primary) principal notifiable infectious diseases have declined during the week. The rise in the incidence of pneumonia, in which London has shared, is small and remains below the figure for the corresponding week last year and the median value for the last nine years. In Scotland, where the notifications of primary and influenzal pneumonia are separate, there has been an increase in the influenzal form and a small decrease in the primary form. Notifications of scarlet fever were well below those recorded for the previous week, both for England and Wales and for London. In Lancaster notifications fell from 496 to 316; of these 69 (84) were in Liverpool, 25 (30) in Manchester, 29 (19) in St. Helens, and 29 (172) in Crosby. The more recent cases in Crosby—in all 231 cases in the last three weeks—appeared to have resulted from contact with the "primary" cases, which were ascribed to infected foodstuffs.

Plague and Cholera in British India and Burma

In recent years the bulk of the cases of plague occurred in the first quarter of the year, chiefly in the Central Provinces and United Provinces of India. For the four years 1936 to 1939 the figures for the first quarter, including Burma, were in succession 9,604, 16,465, 12,237, and 16,443. In the present year the disease was prevalent, compared with the corresponding period of 1938, in Hyderabad State, but less prevalent in the Presidencies of Bombay and in Madras and Mysore.

In the first quarter of 1939 cholera was much less prevalent than in the corresponding period of the previous four years. During the first quarter 23,689 cases were reported in the whole of India, compared with 19,650 in 1934, 53,000 in 1935, 46,000 in 1936, and 43,000 in 1937. The position showed most improvement in Bengal, where the disease is usually most prevalent, there being 17,077 cases in the first quarter of the present year, compared with 22,180 in the corresponding period of last year.

Sylvatic Plague in the U.S.A.

Since 1924 there have been no outbreaks of human plague (urban or of murine origin) in the United States, and sporadic cases reported since then have been connected with an epizootic among wild rodents. In 1938 the disease occurred in squirrels in Adams County, Washington State, in Wyoming, Arizona, and in Catron County, New Mexico. In March and April, 1939, plague was observed among squirrels in the counties of Adams and Lincoln, in Washington State. The great increase in the number of recorded rodent infections is probably due to the increased and systematic search, especially in California and Washington, and is in marked contrast to the small number of human infections reported.

No. 20

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended May 20, 1939.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for : (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland. Median values for the last 9 years for (a) and (b).

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for : (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns (9 in 1937) in Northern Ireland.

A dash — denotes no cases ; a blank space denotes disease not notifiable or no return available.

Disease	1939					1938 (Corresponding Week)					1930-8 (Median Value Corresponding Weeks)	
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)	(a)	(b)
Cerebrospinal fever	30	4	12	1	—	35	4	12	2	2		
Deaths		—	1				1	1				
Diphtheria	790	84	203	27	15	1,110	164	159	43	25	899	164
Deaths	25	5	8	2	—	26	1	7	2	1		
Dysentery	39	7	24		—	36	10	120		—		
Deaths				—					—	—		
Encephalitis lethargica, acute	7	—	—		—	2	—	—		1		
Deaths		—					1					
Enteric (typhoid and paratyphoid) fever	20	—	9	8	1	15	2	34	4	1	24	
Deaths	1	—	1	—	—	—	—	—	—	—		
Erysipelas		35	61	5	2			76	6	2		
Deaths		1					3					
Infective enteritis or diarrhoea under 2 years												
Deaths	34	7	5	7	1	29	8	12	4	5		
Measles		54	180		8			382		6*		
Deaths	2	—	—	3	1	26	10	10	—	2		
Ophthalmia neonatorum	114	10	38		—	110	15	37		2		
Deaths												
Pneumonia, influenzal†	850	86	10	2	16	1,336	131	8	9	7	919	76
Deaths (from influenza)	31	5	—	1	2	66	10	7	—	—		
Pneumonia, primary		86	190	11				252	12			
Deaths		12		4	5		26		16	13		
Polio-encephalitis, acute	—	—				—	—					
Deaths		—					—					
Poliomyelitis, acute	4	1	—		—	3	—	1		—		
Deaths		—					—					
Puerperal fever	3	3	16	1	—	4‡	4	22	2	—		
Deaths		1					1§					
Puerperal pyrexia	179	20	22		—	199	26	23		7		
Deaths												
Relapsing fever	—	—			—	—	—			—		
Deaths												
Scarlet fever	1,784	167	234	50	94	2,006	201	485	112	91	1,986	227
Deaths	3	—	1	1	—	1	1	—	2	—		
Small-pox	—	—	—		—	—	—	—		—		
Deaths		—		—		—	—		—	—		
Typhus fever	—	—	—		—	—	—	—	—	—		
Deaths				—					—	—		
Whooping-cough		322‡	264		25			59		7		
Deaths	22	2	4	—	—	17	1	2	1	2		
Deaths (0-1 year)	316	51	59	19	16	319	52	68	28	24		
Infant mortality rate (per 1,000 live births)	49	50				53	43					
Deaths (excluding stillbirths)	4,350	810	608	169	144	4,677	911	659	185	154		
Annual death rate (per 1,000 persons living)	10.7	10.4	12.3	11.4	12.6	11.5	11.6	13.4	12.5	13.7		
Live births	6,485	1,069	1,067	302	275	6,889	1,299	1,008	368	273		
Annual rate per 1,000 persons living	15.9	13.7	21.6	20.3	24.2	16.9	16.5	20.5	24.9	24.2		
Stillbirths	255	44	56			305	41					
Rate per 1,000 total births (including stillborn)	39	34	50			42	31					

* 6 cases in Belfast alone.

† Includes primary form in figures for England and Wales, London (administrative county), and Northern Ireland.

‡ After October 1, 1937, puerperal fever was made notifiable only in the administrative county of London.

§ Death from puerperal sepsis.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1.

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QUERIES AND ANSWERS

Income Tax

Excessive Repayment

"X Y Z" asks: For the past two years a small amount of income has been received from which income tax was not deducted on payment. This was clearly shown in the forms for the repayment claim and full particulars given when they were sent in to the inspector. The amount of the repayment has always been left to his calculation and his figures accepted. He is now claiming a refund for the past two years of excessive repayments owing to miscalculations by his staff. Is this payment from the taxpayer compulsory?

*** "X Y Z" gave all the relevant information, and it must therefore be assumed that the Revenue Office erred in applying the facts—that is, that the error was one of law and not of fact. In these circumstances the request for a refund is not legally enforceable.

Tax Payable by Indoor Assistant

"SENEX" inquires whether he is liable in the following circumstances. His sole income is £400 a year from an indoor assistantship; he has a wife and daughter (under 16), and pays £64 in life assurance premiums; £1 covers his professional expenses.

*** His liability works out as under:

Gross amount assessable			£400−£1=£399
Allowances: Earned income relief	£80		
Personal relief	£180		
Child relief	£60		
		£320	
Net amount assessable			£79
Tax at 1s. 8d. in the £	£6 11 8		
Less life assurance allowance, £64 at 1s. 8d.	£5 6 8		
Net amount of tax payable		£1 5 0	

Dominion Tax Payable on Pension

"Z. Y. X." held an appointment in East Africa, and, now retired, draws some income from the territory now known as Kenya. He has now received assessments for tax assessed there for 1937 and 1938, though he has for many years resided in the United Kingdom.

*** The present Kenya income tax was imposed in 1937, and the code renders non-residents liable in respect of income from sources in the colony. "Z. Y. X." is consequently legally assessable to that tax, but the usual "Dominion Income Tax Relief" conditions apply. Under the relevant provisions he can claim relief from Kenya income tax (*a*) at half the Empire rate or (*b*) at the excess of the Kenya rate over half the Empire rate, whichever is less. As regards United Kingdom income tax, Section 27 of the Finance Act, 1920, gives relief here at (*a*) the Dominion rate or (*b*) half the "appropriate rate" of United Kingdom tax, whichever is less. The Kenya enactment has complicated the position, but "Z. Y. X." may find that it has not added much to the tax ultimately payable by him.

LETTERS, NOTES, ETC.

Unusual Foreign Body in Vagina

Dr. J. D. DURANCE writes: The interesting article by Mr. Ian Fraser on foreign bodies (*Journal*, May 13, p. 967) prompts me to record the following case. A woman aged 50, of low intelligence, but not one who would ordinarily be described as "mental," complained of offensive vaginal discharge for three months past. She had had a hysterectomy some years previously. On examination I found a golf ball well up in the vagina. Attempts at manual removal failed, and I was reminded of the method used for trapping monkeys in certain parts of Africa by placing an apple in a gourd: when the monkey seizes the apple he cannot withdraw his hand without relinquishing his grasp. So in this case; I could get two fingers above the ball and draw it downwards, but the vagina at its outlet was too narrow to allow the passage of both fingers and golf ball, and traction merely caused the ball, which was well lubricated, to rotate and shoot back into the wider part of the vagina above. Here the parallel of the monkey, apple, and gourd ends, for I gave up the attempt at manual removal, and returned next day, administered a general anaesthetic in order to obtain muscular relaxation, and removed the foreign body with volsellum forceps. It is interesting to note that her hysterectomy had been performed because of "persistent menorrhagia"; this continued after the operation, and the surgeon found to his chagrin that the apparent haemorrhage was due to the patient's perverted habit of inserting lumps of raw liver into her genital canal.

Nutrition in Tuberculosis

Dr. C. MUTHU (Catsfield, Sussex) writes: I am glad that, mainly through the efforts of the British Medical Association and others, this country has at last realized the importance of nutrition in the building of a strong and healthy nation. For more than thirty years I have emphasized that nutrition is more important than infection, that sound health is more dependent upon a well-balanced diet than upon any other factor, and that tuberculosis is largely the outcome of bad social and economic conditions. If an illustration on a large scale is needed, then the war showed conclusively that the widespread prevalence of tuberculosis in countries like Austria and Germany was due to want of fat, to underfeeding, and to chronic starvation. It is the same in the case of India. In addition to poverty and insanitation, India has suffered from an impoverishment of the soil, which is deprived of the salts and materials necessary for the normal growth of plants and animals. The nutritive value of the food raised from such a poor soil is thus considerably lowered, with the result that the vitality of the people is sadly impaired and they suffer from chronic ill-health and tuberculosis. It is little wonder that the average expectation of life in India has fallen to 22 years, while in England and America it is as high as 50 to 58 years and in New Zealand nearly 65 years. It is recognized that the incidence of and mortality from diseases like tuberculosis are lowest in the nations which are best nourished and enjoy sanitary and hygienic surroundings. One notices over and over again that children suffering from enlarged glands, adenoids, enlarged tonsils, low fever, and poor health (once considered as a scrofulous, but now as a pre-tuberculous state) brought on by deficiencies of vitamins, minerals, etc., get well when placed in conditions where they have good nourishing food, pure milk, plenty of fresh air, etc. I have shown in my book on tuberculosis that the correct feeding of a nation is a more urgent problem than even good housing and sanitation, important as these are. The British Medical Association is doing a national service in drawing the serious attention of this country to the importance of nutrition in the prevention of disease and in raising a strong and A1 nation.